STEREO MINIDISC RECORDER

DMF-9020/9020(S)
MD-2070
SERVICE MANUAL

KENWOOD

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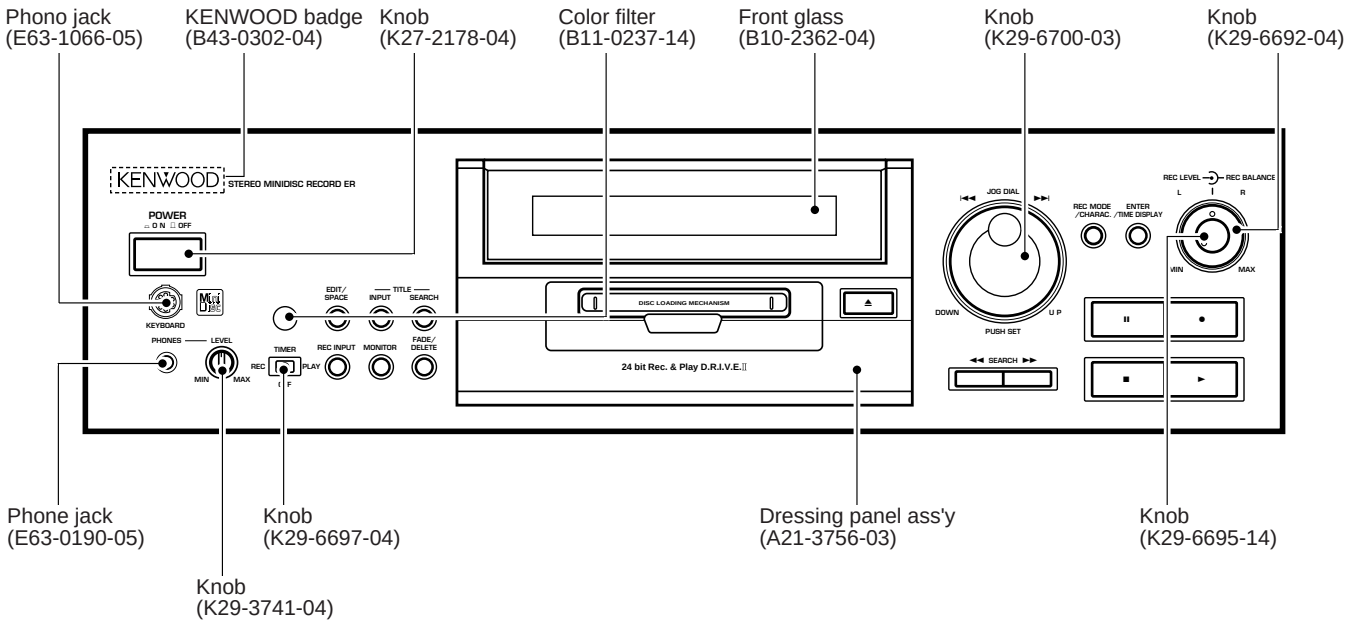

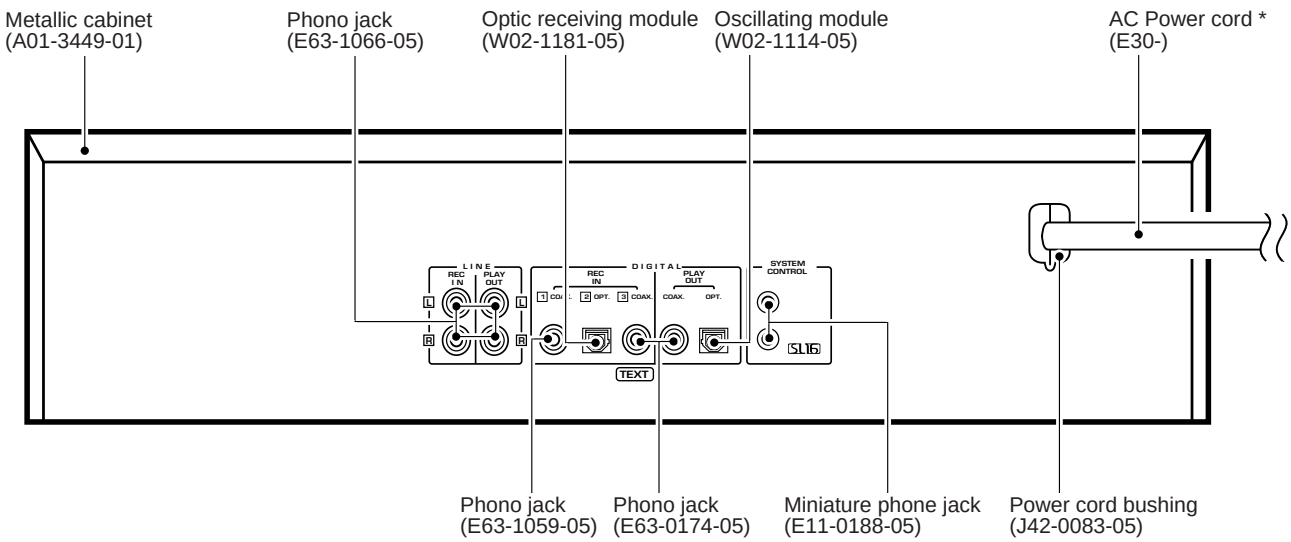

Illustration is DMF-9020.

Refer to parts list on page 29.

In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety,

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulation No.21 CFR 1040.10, Chapter 1, Subchapter J.

DANGER : Laser radiation when open and interlock defeated.
AVOID DIRECT EXPOSURE TO BEAM.

DMF-9020/9020(S)/MD-2070

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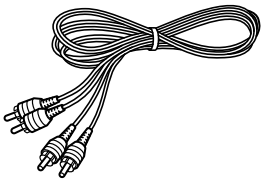
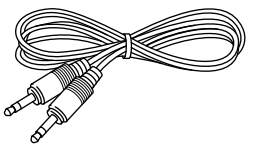
Accessories

Audio cord (2)
(E30-0505-05)

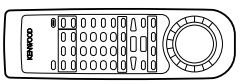


System control cord (1)
(E30-2733-05)



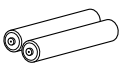
Optical fiber cable (1)
(B19-1529-05)

Remote control unit (1)
RC-M0905
(A70-1255-05)



Battery cover (A09-1106-08)

Batteries (2)



Cautions

Note related to transportation and movement

Before transporting or moving this unit, carry out the following operations.

1. **Set the POWER key to ON without loading a Mini Disc.**
   ● Check that no disc is present in the unit.
2. **Wait a few seconds and verify that the display shown appears.**
3. **Set the POWER key to OFF.**

Operation to reset

The microprocessor may fall into malfunction (impossibility to operate erroneous display, etc.) when the power cord is unplugged while power is ON or due to an external factor. In this case, execute the following procedure to reset the microprocessor and return it to normal condition.

With the POWER key left to ON, unplug the power cord from the power outlet then, while holding the eject (⏏) key depressed, plug the power cord again.

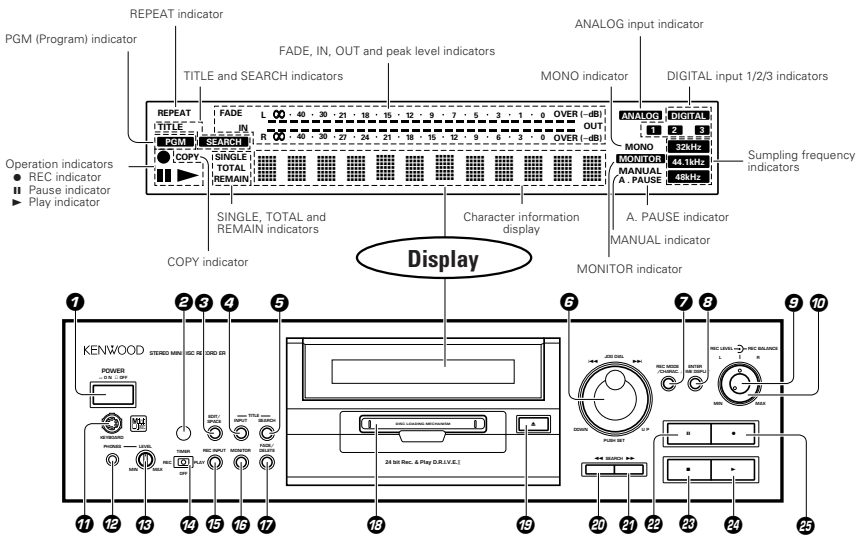
● Please note that resetting the microprocessor clears the contents stored in, it returns the microprocessor to the condition when it left the factory.

Caution on condensation

Condensation (of dew) may occur inside the unit when there is a great difference in temperature between this unit and the outside.
This unit may not function properly if condensation occurs. In this case, leave the unit for a few hours with the power left ON, and restart the operation after the condensation has dried up.

Be specially cautious against condensation in a following circumstance:
When this unit is carried from a place to another across a large difference in temperature, when the humidity in the room where this unit is installed increases, etc.

Display / Main unit



Description of main unit keys

❶ POWER key
: Press to turn the unit ON and OFF.
: The unit may enter the standby mode when the **POWER** key is pressed to turn it ON. This is because the unit holds the memory that it has been put to the standby mode by the remote control unit in the last operation.

❷ Remote control sensor

❸ EDIT/SPACE key
EDIT
: Press to switch the editing mode ON/OFF.
SPACE
: Press to insert a blank space character during the title input operation.

❹ TITLE INPUT key
: Press to switch the title input mode ON/OFF.

❺ TITLE SEARCH key
: Press to switch the title search mode ON/OFF.
: During title editing, press to switch the title change input mode between the "overwrite mode" and "insert mode".

❻ JOG DIAL
Skip down (I◄◄)/ Skip up(►►I) knob
: During playback, rotate to skip tracks.
: Before starting recording in record mode, rotate to select the recording setting adjustment mode.
: During title search, rotate to select a track number.
: During title input, rotate to select a track number or a character.
: During editing, rotate to select the editing mode or a track number.
PUSH SET knob
: For use in setting the editing result and input title in memory.
: When pressed in the recording pause mode, the MEMORY REC function is set and recording starts from the sound approximately 6 seconds before the current sound.

❼ REC MODE/CHARAC. (Character) key
REC MODE
: Press to switch the recording setting adjustment modes (record modes) ON/OFF.
CHARAC.
: Press to select a character group during the title input operation.

❽ ENTER/TIME DISPLAY key
ENTER
: For use in executing the editing and title input operations.
TIME DISPLAY
: Press to switch the time and title display.

❾ REC LEVEL knob
: Rotate to adjust the analog recording level.

❿ REC BALANCE knob
: Rotate to adjust the analog recording balance.

⓫ Keyboard connector
: Connect an IBM PC compatible keyboard (optional) here.

⓬ PHONES jack
: Connect stereo headphones (optional) here.

⓭ PHONES LEVEL knob
: Rotate to adjust the volume of the headphones.

⓮ TIMER switch
: This switch is used in timer playback and timer recording.

⓯ REC INPUT key
: Press to switch the recording input line between digital (optical/coaxial), analog and monaural.

⓰ MONITOR key
: Press to monitor the sound being input from the source while the unit is in stop mode.

⓱ FADE/DELETE key
FADE
: Press to switch the fade mode ON/OFF.
DELETE
: During title editing, press to delete a character. During track editing, press to delete a track.

⓲ Mini Disc insertion slot
: When a Mini Disc is inserted while the unit is in the standby mode, it is turned ON automatically.

⓳ Eject (▲) key
: Press to eject the Mini Disc.

⓴ Manual search down (◄◄) key
: This key also functions as the fast reverse key during playback.
: During an editing mode, press to move the title input cursor or to scroll the track title display to the left.

㉑ Manual search up (►►) key
: This key also functions as the fast forward key during playback.
: During an editing mode, press to move the title input cursor or to scroll the track title display to the right.

㉒ Pause (II) key
: Press to let playback or recording pause temporarily.

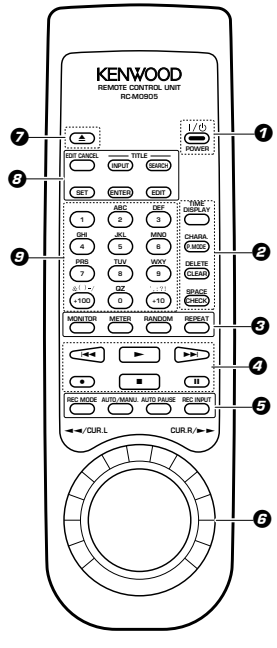
㉓ Stop (■) key
: Press to stop playback or recording.

㉔ Play (►) key
: Press to start playback.

㉕ Record (●) key
: Press to start recording.
In stop mode
: When the ● key is pressed while a recordable disc is present in the unit, it enters record-pause mode.
(It enters record-pause mode at the position immediately after the last existing track.)
In record-pause mode
: When the ● key is pressed, the SOUND SYNCHRO REC standby mode is set.
: In the SOUND SYNCHRO REC standby mode, the set functions in the same way as in the normal recording pause mode.

Remote control unit

The remote control unit incorporates the basic operation keys as well as a variety of applied operation keys so that it can be used in a wide range of purposes.
The keys on the remote control unit with the same names as on the main unit have the same function as the keys on the main unit.



Model: RC-M0905
Infrared ray system

❶ ON/STANDBY key
: Press to turn the unit between ON and STANDBY (I/⏻) modes.

❷ Character editing keys
TIME DISPLAY key
: Press to switch the time and title display.
CHARA. (Character)/ P.MODE (Play Mode) key
CHARA.
: Press to select a character group during the title input operation.
P.MODE
: Press to initiate the program mode.
DELETE / CLEAR key
DELETE
: During title input, press to delete a character.
CLEAR
: During editing, press to clear a selected track number.
: In program mode, press to clear the program.
SPACE / CHECK key
SPACE
: During title input, press to insert a blank space character.
CHECK
: In program mode, press to check the program contents.

❸ MONITOR key
: Press to monitor the sound being input from the source while the unit is in stop mode.
METER key
: Press to switch the level meter display contents.
RANDOM key
: Press to initiate the random play mode.
REPEAT key
: Press to switch the repeat modes for repeat playback.

❹ Basic operation keys
► : Play key
I◄◄ , ►►I : Skip down/up keys
● : Record key
■ : Stop key
II : Pause key

❺ Recording-related keys
REC MODE key
: Press to switch the recording setting adjustment modes ON/OFF.
AUTO/MANU. key
: Selects whether the track numbers are to be marked automatically during recording (AUTO) or to be marked manually after it (MANUAL).
AUTO PAUSE key
: When this key is pressed, the pause mode is initiated automatically at the point where the track number changes during playback.
: When pressed in the recording or recording standby mode, the AUTO REC PAUSE mode is turned on.
REC INPUT key
: Press to switch the recording input line between digital (optical/coaxial), analog and monaural.

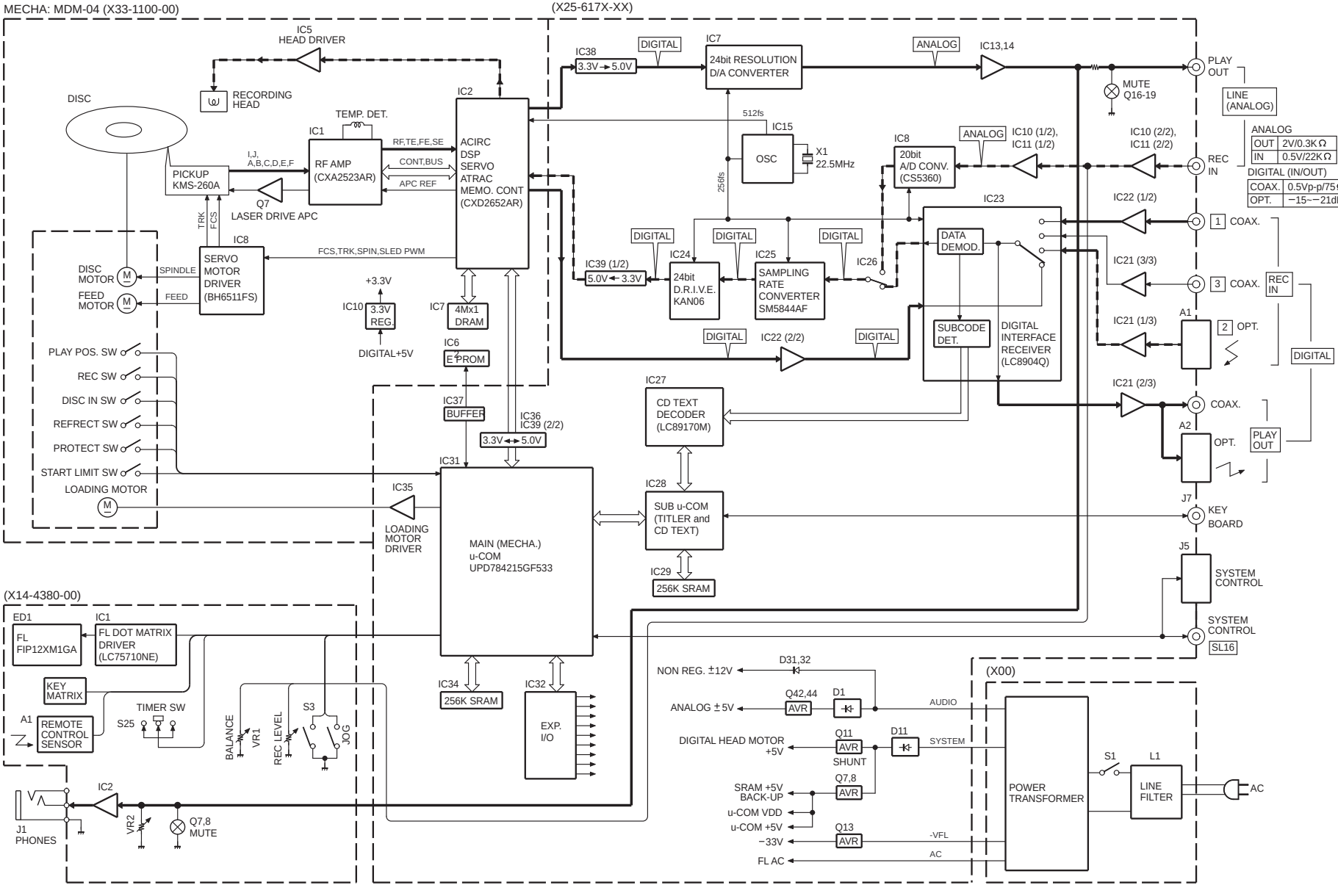
❻ CURSOR / ◄◄ , ►► shuttle
CURSOR
: During title input, rotate to move the cursor.
◄◄ , ►►
: Use this during playback for forward and reverse search.

❼ EJECT (⏏) key

❺ Editing mode keys
EDIT CANCEL key
: Press to cancel the editing operation.
TITLE INPUT key
: Press to switch the title input mode ON/OFF.
TITLE SEARCH key
: Press to switch the title search mode ON/OFF.
: During title editing, press to switch the title change input mode between the "overwrite mode" and "insert mode".
SET key
: This key is used in the title assignment or editing operations.
: When pressed in the recording pause mode, the MEMORY REC function is set and recording starts from the sound approximately 6 seconds before the current sound.
ENTER key
: Press to execute editing or enter the input title in memory.
EDIT key
: Press to switch the editing mode ON/OFF.

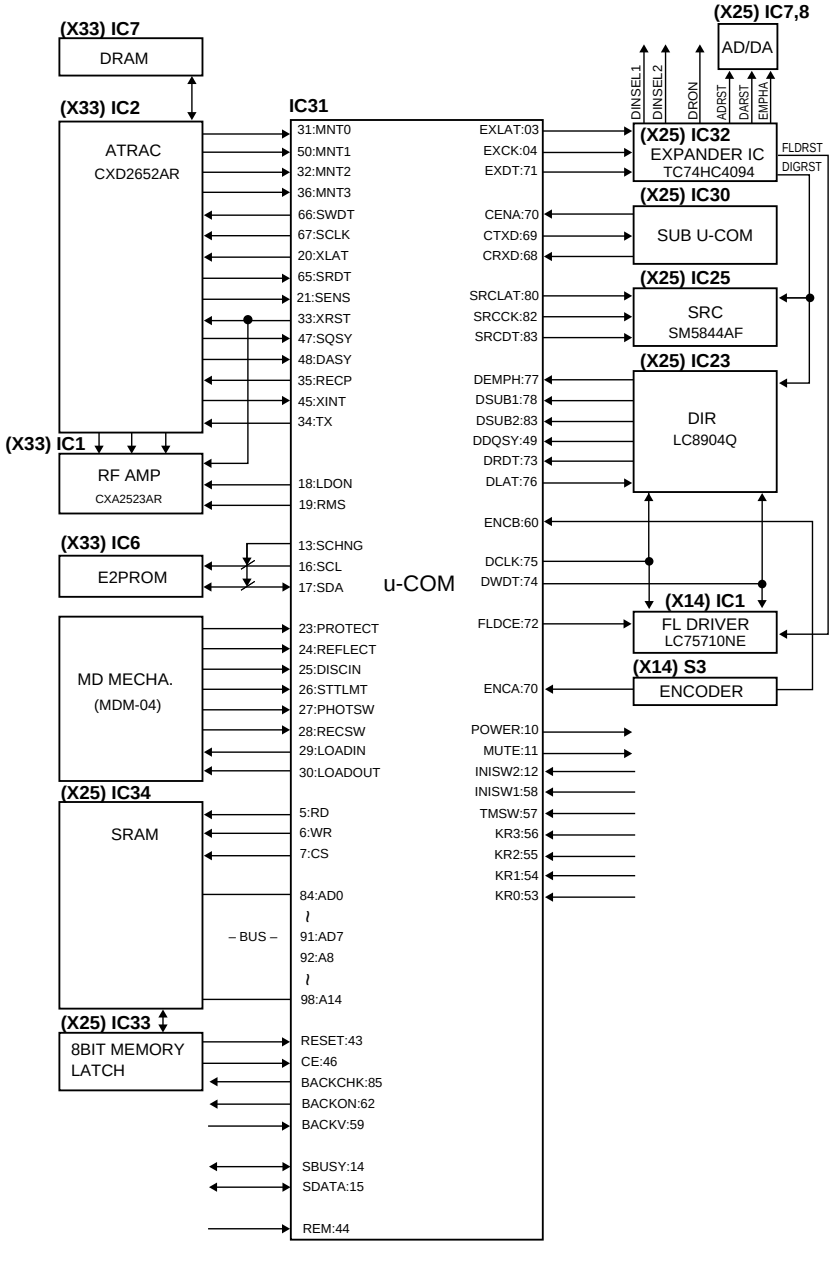
❺ Numeric keys
0-9
: Press when selecting a track number directly.
+10
: Press when selecting a track number 10 or more.
+100
: Press when selecting a track number 100 or more.
: These keys are also used to select a character or symbol during title editing.

BLOCK DIAGRAM



1. Mechanism microprocessor : uPD784215GF533 (X25: IC31)

1-1 Microprocessor peripley block diagram



1-2 Pin description

No.	Name	I/O	Description	
1,2	-	O	N.C.	
3	EXLAT	O	Extension port latch	
4	EXCL	O	Extension port clock	H; DIGITAL 1
5	$\overline{RD}$	O	SRAM read strobe	
6	$\overline{WR}$	O	SRAM write strobe	
7	CS	O	SRAM CS	L; SRAM enable
8	ASTB	O	SRAM address strobe	
9	Vdd	-	Power supply (Microprocessor)	
10	POWER	O	Power terminal	H; Power ON
11	$\overline{MUTE}$	O	Mute control output	L; Mute ON
12	INISW2	O	Destination selector	H:DMF-9020,MD-2070
13	SCHNG	O	E2PROM data IN/OUT change-over	H; SDA output
14	SBUSY	I/O	16 serial busy	
15	SDATA	I/O	16 serial data	
16	SCL	O	E2PROM clock	
17	SDA	I/O	E2PROM data	
18	LDON	O	Laser ON / OFF control port	H; LD ON
19	RMS	O	Pick RMS	H; ON
20	XLAT	O	System IC latch	
21	SENS	I	System IC sens	
22	Vpp	-	GND	
23	PROTECT	I	Detection port of protect switch	L; Protect ON
24	REFLECT	I	Detection port of reflect switch	H; Low reflect
25	DISCIN	I	Detection of disc input switch	L; Disc out SW ON
26	STTLMT	I	Detection port of limit switch	L; Start limit SW ON
27	PHOTSW	I	Detection of mechanism play position	L; Photo sensor ON
28	REC SW	I	Input port of detection from REC position switch	L; REC SW ON
29	LOADIN	O	Output port of loading motor control signal	L; Loading OUT
30	LOADOUT	O	Output port of loading motor control signal	L; Loading IN
31	MNT0	I	FOK signal from CXD2652AR (IC2)	L; Focus ON
32	MNT2	I	Input port of monitor 2 from CXD2652AR (IC2)	
33	XRST	O	Output port of reset signal to CXD2652AR (IC2)	
34	TX	O	Output port of recording permitted signal	
35	RECP	O	Laser power control to CXD2652AR (IC2)	
36	MNT3	I	Input port of monitor 3 from CXD2652AR (IC2)	
37	Vdd	-	Power supply (Microprocessor)	
38,39	X2.1	-	Clock OUT/IN (12.5MHz)	
40	Vss	-	GND	
41	OPEN	O	No used	
42	GND	I	No used	
43	RESET	I	Microprocessor hard reset	
44	REM	I	Remocon signal input terminal	
45	XINT	I	Input port of interrupted status from CXD2652AR (IC2)	
46	CE	I	Microprocessor chip enable	H; Enable / L; disable
47	SQSY	I	Input port of sub code Q from CXD2652AR (IC2)	
48	DQSY	I	U-bit of digital IN / SUB Q sync input of CD format from CXD2652AR (IC2)	
49	DDQSY	I	DIR.(LC8904Q)SUB-Q thrust	
50	MNT1	I	Input port of track jump detection from CXD2652AR (IC2)	
51	Vdd	-	Microprocessor power supply (+5V)	
52	AVref 0	-	A/D reference voltage (Connect Vdd)	
53~56	KR0~KR3	I	Key return (KR0~KR3)	
57	TMSW	I	Timer switch input 0.0V OFF 1.25V PLAY 3.7V REC 5.0V	
58	INISW1	I	Detection selector	
59	BACK	I	Back up voltage detection (Less than 2.2V : NG)	
60	ENCB	I	Encoder input B	
61	GND	-	GND	
62	BACK ON	O	Back up charge control	H; Charge ON
63	ENCA	I	Rotary encoder A	
64	AVref 1	-	D/A reference voltage (+5V)	
65	SRDT	I	Data for reading input from CXD2652AR (IC2)	

No.	Name	I/O	Description
66	SWDT	O	Data for writing to CXD2652AR (IC2)
67	SCLK	O	Serial clock to CXD2652AR (IC2)
68,69,70	-	-	N.C.
71	EXDT	O	Extension port data
72	FLDCE	O	CE to FL driver IC(LC75710NE) H; ON
73	DRDT	I	Data for reading form DIR.(LC8904Q)
74	DWDT	O	Data for writing to DIR.(LC8904Q) ,FL driver IC(LC75710NE)
75	DCLK	O	Clock to DIR.(LC8904Q) ,FL driver IC(LC75710NE)
76	DLAT	O	Latch to DIR.(LC8904Q)
77	DEMPH	I	Emphasis form DIR.(LC8904Q) H; ON
78	DSUB1	I	SUB1 form DIR.(LC8904Q)
79	DSUB2	I	SUB2 form DIR.(LC8904Q)
80	SRCLAT	O	Latch to SRC.(SM5844AF)
80	-	O	No used / pull up
82	SRCCK	O	Clock to SRC.(SM5844AF)
83	SRCDT	O	Data to SRC.(SM5844AF) H; ON
83	ADRST	O	Data to SM5844AF (IC25) ADC reset
84~91	AD0~AD7	O	SRAM address / data (AD0~AD7)
92~99	A8~A15	O	SRAM address (A8~A15)
100	Vss	-	GND

1-3 Initialization

※ POWER = ON (DM-9090,DM-5090)
※ REC INPUT = ANALOG
※ DIGITAL REC LEVEL = 0 dB
※ AUTO/MANUAL = AUTO
※ AUTO CUT = OFF
FADE = OFF
PLAY MODE = TRACK
REPEAT = OFF
TIME DISPLAY = SINGLE(+)
LEVEL METER MODE = NORMAL MODE
※ AUTO TNO TIME = 2 sec
※ AUTO TNO LEVEL = 0 (-55 dB)
※ FADE TIME = 3sec
※ REC END WRITE = ON
DRIVE = ON
※ PRESET TITLE = PRE1 : Pops
PRE2 : Rock
PRE3 : Classic
PRE4 : Jazz
PRE5 : Disco
PRE6 : Best Hits
PRE7 : Air Check
PRE8 : No.
PRE9 : Vol.

※ : Backup item

1-4 Switch control table

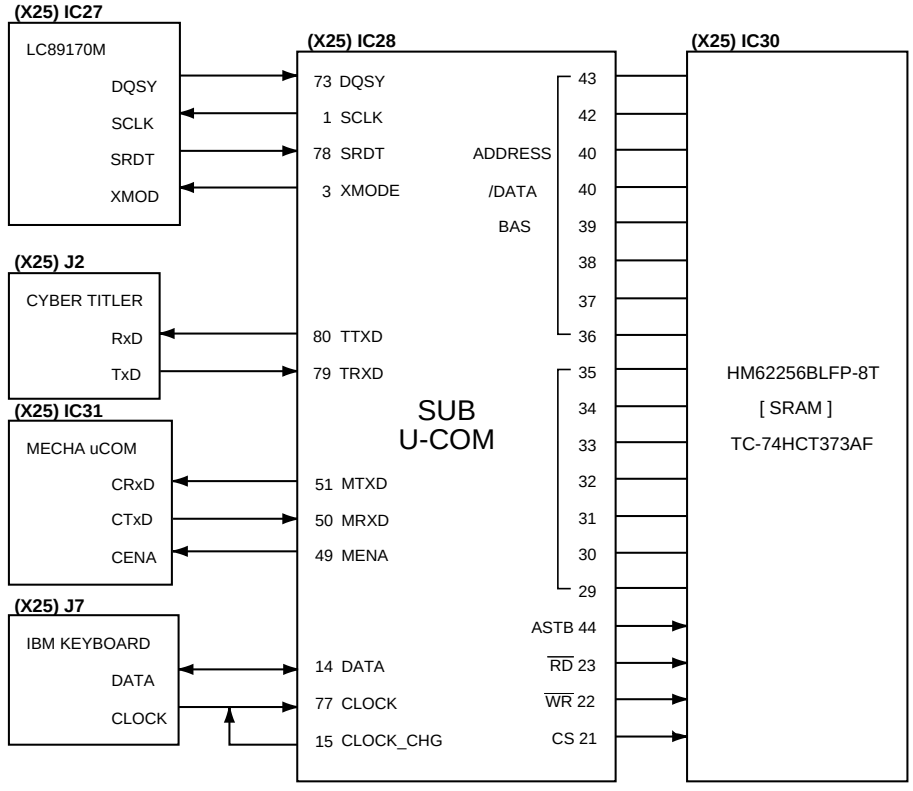
Model	INISW ㊽	INISW ⑫
DMF-9020	3.5 (V)	HIGH
MD-2070		

1-5 Key voltage matrix

	0.0V	0.8V	1.6V	2.4V	3.2V	4.0V
KR0	POWER	EJECT	PAUSE	-	FF	-
KR1	STOP	REC	PLAY	-	FB	TT SEARCH
KR2	FADE/ DEL	EDIT/ SPACE	TT INPUT	REC INPUT	MONITOR	-
KR3	SET	ENTER/ TIME	REC MODE/ CHR	-	-	-

2. Sub microprocessor : uPD784035GC836 (X25 : IC28)

2-1 Microprocessor peripley block diagram



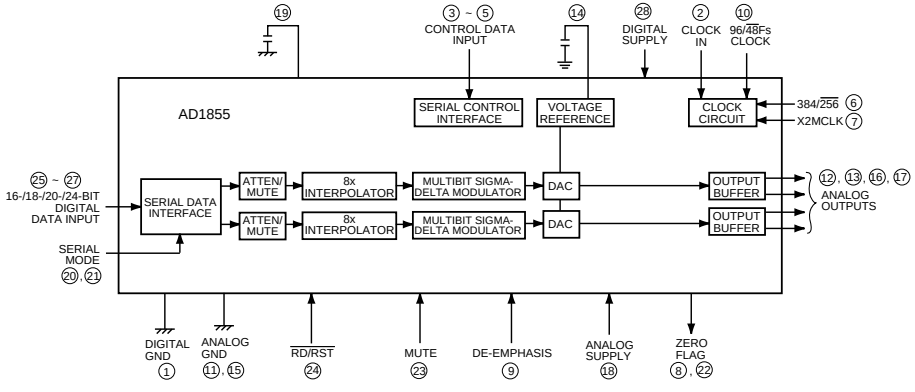
2-2 Pin description

Pin No.	Port Name	I/O	Description
1	SCLK	O	Text data read clock
2	NC	O	no use
3	XMODE	O	Text data decode LSI reset L : POWER DOWN
4-6	NC	O	no use
7	RESET	–	Microprocessor reset
8	VDD	–	Microprocessor power supply (+)
9	X2	O	Oscillation (12MHz)
10	X1	I	Oscillation (13MHz)
11	VSS	–	Microprocessor GND
12,13	NC	O	no use
14	DATA	I/O	IBM key board I/F data line
15	CLOCK_CHG	O	IBM key board I/F data output line H : CLOCK LINE LOW
16-20	NC	O	no use

Pin No.	Port Name	I/O	Description	
21	CS (SRAM)	O	SRAM control. chip select	H : POWER DOWN
22	WR	–	SRAM control. write strobe signal output	
23	RD	–	SRAM control. read strobe signal output	
24-28	NC	O	no use	
29-35	A14-8	–	SRAM control. address bus	
36-42	AD7-1	–	SRAM control. address/data bus	
43	AD0	–	SRAM control. address/data bus	L : POWER DOWN
44	ASTB	–	SRAM control. address strobe signal output	
45	VSS	–	Microprocessor GND	
46	TEST	–	Microprocessor TEST	
47,48	NC	O	no use	
49	MENA	O	Mechanism-microprocessor. enable	
50	MRXD	–	Mechanism-microprocessor. data in line (UART)	
51	MTXD	O	Mechanism-microprocessor. data out line (UART)	
52-54	NC	O	no use	
55	VDD	–	Microprocessor power supply (+)	
56-61	NC	I	no use	
62	CTR_JIS	I	Cyber titler. for JIS code	H : JIS
63	TXT_JIS	–	CD TEXT. for JIS code	H : JIS
64	AVDD	–	A/D power supply	
65	AVref1	–	A/D reference voltage input port (+5V)	
66	AVSS	–	A/D GND	
67,68	NC	O	no use	
69	AVref2	–	D/A reference voltage input port (+5V)	
70	AVref3	–	A/D reference voltage input port (GND)	
71,72	NC	I	no use	
73	DQSY	–	Text data read permit	L : ↓ interrupt
74-76	NC	I	no use	
77	CLOCK	I	IBM key board I/F clock line	L : ↓ interrupt
78	SRDT	I	Text data read line	
79	TRXD	I	Cyber titler. data in line (UART)	
80	TTXD	O	Cyber titler. data out line (UART)	

3. D/A converter : AD1855 (X25 : IC7)

Block diagram (No. of ○: pin No.)



4. Test mode of the unit

4-1 Setting of the test mode

While pressing the [REC/INPUT] key, plug the AC power cord into the AC wall outlet.

4-2 Contents of the test mode

Choose the 3 mode by TIMER switch position below.

	TIMER SW	Mode
(1)	REC	INSPECTION
(2)	PLAY	ERROR RATE
※	OFF	NONE

※ NONE means none mode.

(1) [INSPECTION] mode
• 「ENGLISH」 display (2secs)
↓
• " NIAGARA TEST " display
Dot : Niagara
Segment : All lighting
↓
• Push a key, then cancel " NIAGARA TEST "

• Function of the key

Key	Mode
REC/INPUT	※ KEY-TEST
EDIT	NIAGARA TEST
TITLE INPUT	None all lighting

※ Display [KEY 028] into the KEY-TEST mode. Push a key, then display [KEY ＊＊＊] .

(2) [ERROR RATE] mode
• Function of the key

Key	Function
PLAY	CPLAY (MID)
REC	CREC (MID)
STOP	STOP CPLAY, CREC
	(2time push) ERROR RATE

5. Microprocessor reset

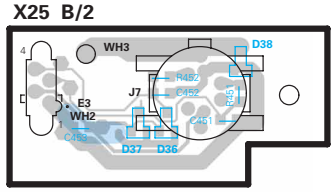
The microprocessor can be initialized while pressing the [EJECT] key, plug the AC power cord into the AC wall outlet.

6. Mechanism test mode

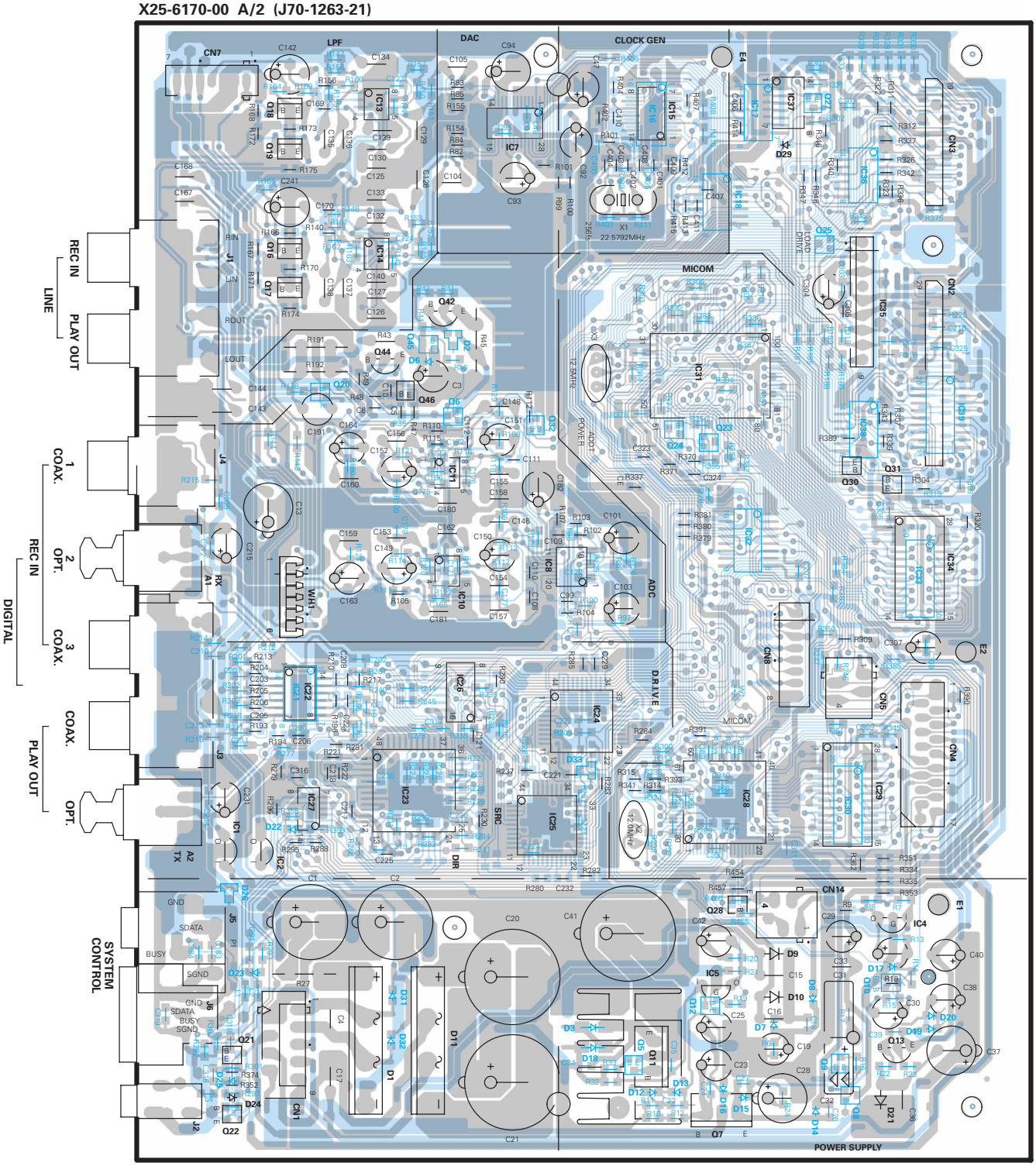
Refer to 1050MD/DM-5090/MD-9090 service manual (B51-5387-00), if you see this test mode.

PC BOARD (Component side view)

X25 B/2



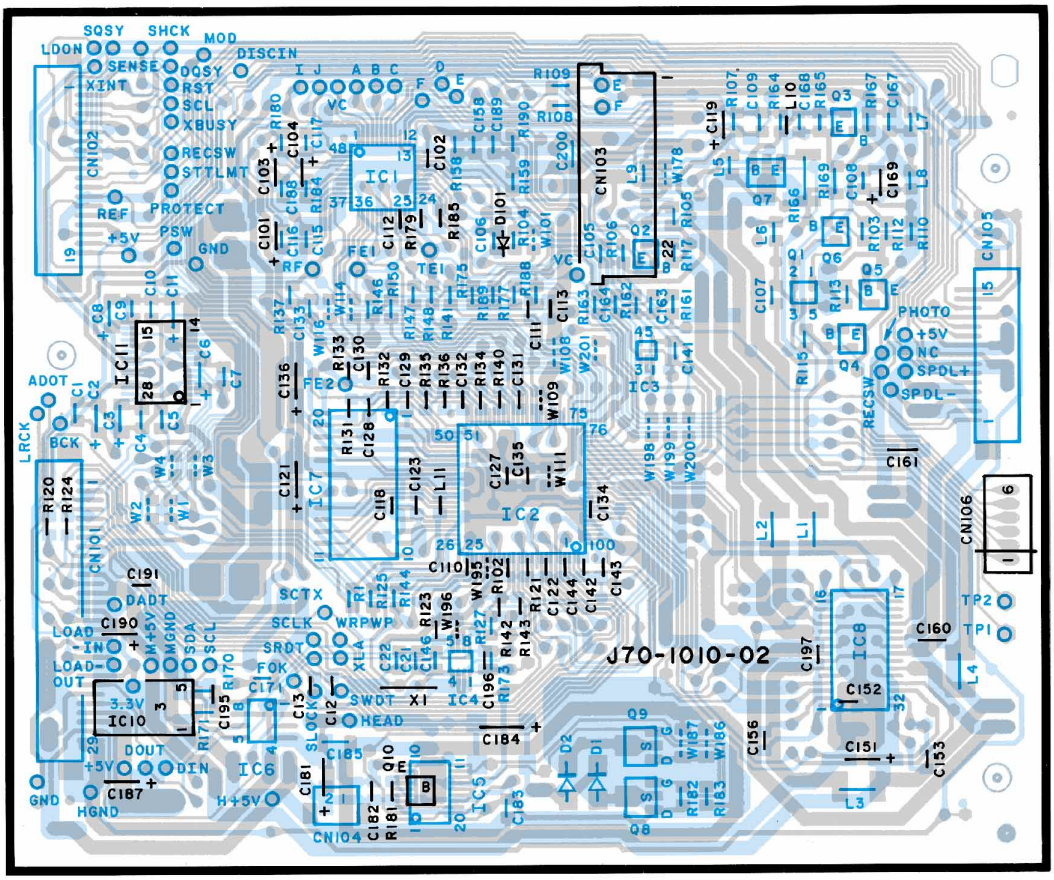
X25-6170-00 A/2 (J70-1263-21)



Refer to the schematic diagram for the value of resistors and capacitors.

PC BOARD (Component side view)

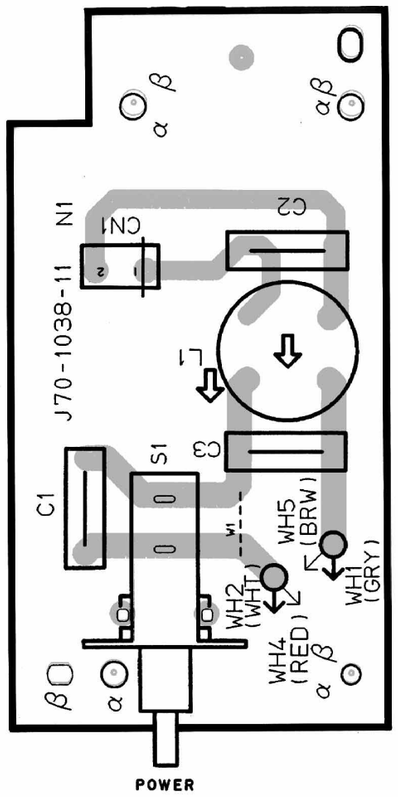
(X33-1100-00)



Refer to the schematic diagram for the value of resistors and capacitors.

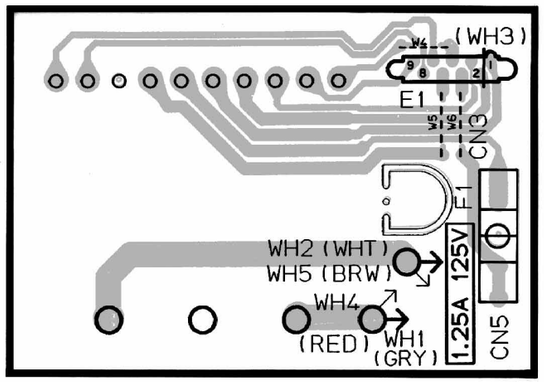
PC BOARD(Component side view)

(X00-2840-00) (A/2)

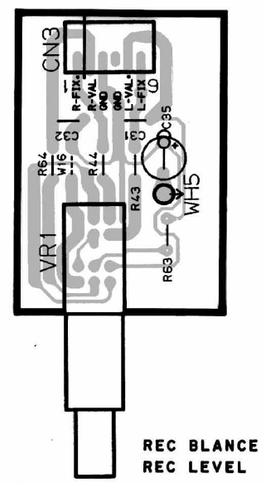


POWER

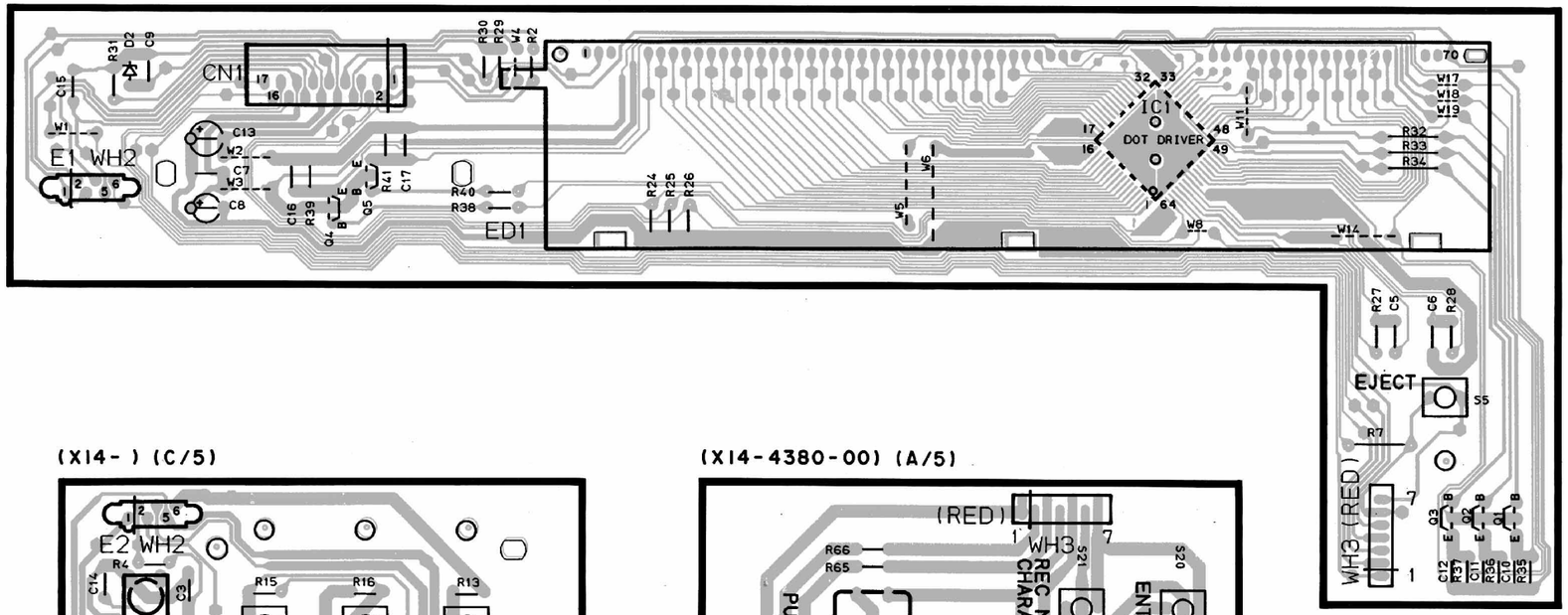
(X00-) (B/2)



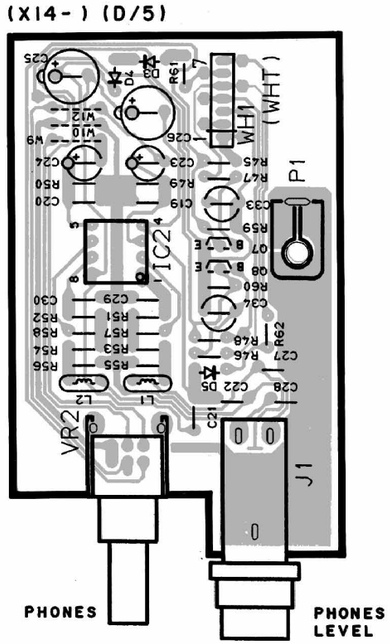
(X14-) (E/5)



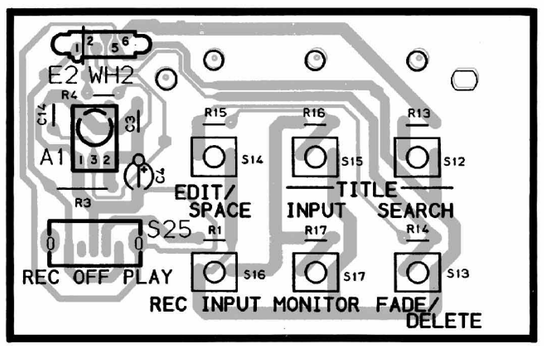
(X14-) (B/5)



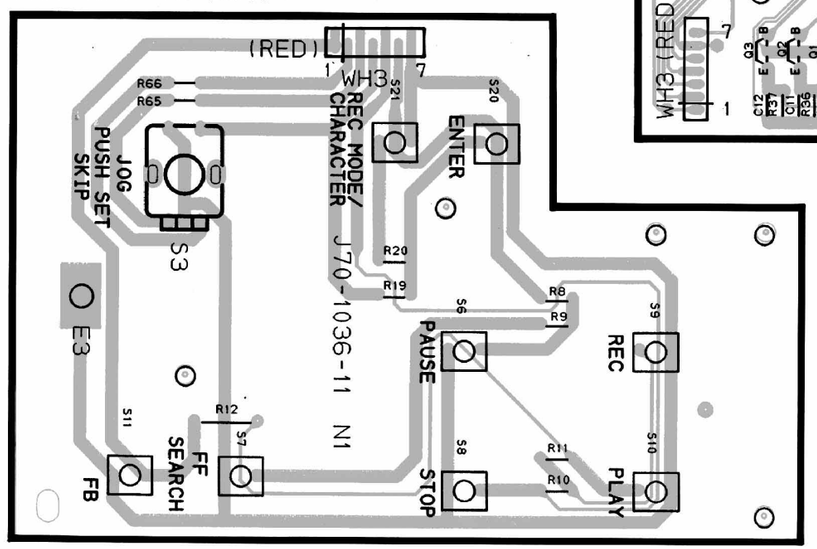
(X14-) (D/5)



(X14-) (C/5)



(X14-4380-00) (A/5)



Refer to the schematic diagram for the value of resistors and capacitors.

MECHA. (D40-1533-05)

(X33-1100-00)

CN104 — HR901 OVER WRITE HEAD

CN103: VEE, E, D, C, F, I, VC, A, B, J, VCC, LD, GND, ILCC, MOD, VR, PD, K, FCS+, FCS-, TRK+, TRK-, NC

OPTICAL PICK-UP BLOCK (KMS-260A/JIN)

CN106: FE1, FE2, VC, TE1, TE2, RF, TP1, TP2, E, F — ADJUSTMENT

HEAD DRIVER — IC5

IC1 RF AMP

IC2 ACIRC ATRAC EN/DECODE

IC3 BUFFER

IC4 512fs

IC6 E²PROM

IC7 DRAM

IC8 BTL

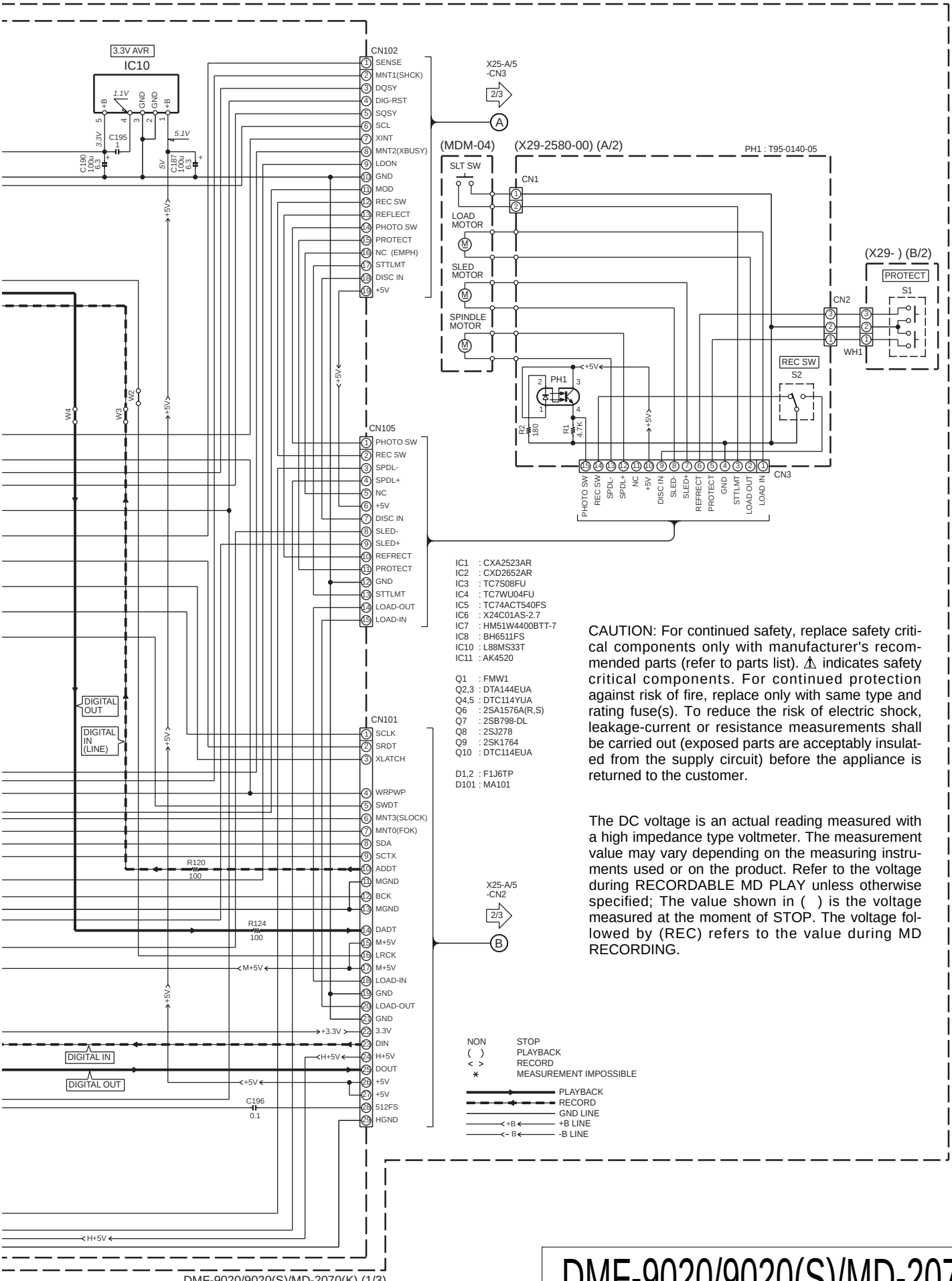
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10

D1 D2 D101

L1 10uH, L2 10uH, L3 100uH, L4 100uH, L5, L6, L7, L8, L9, L10, L11

W1

+3.3V, +5V, H+5V, M+5V, VCC

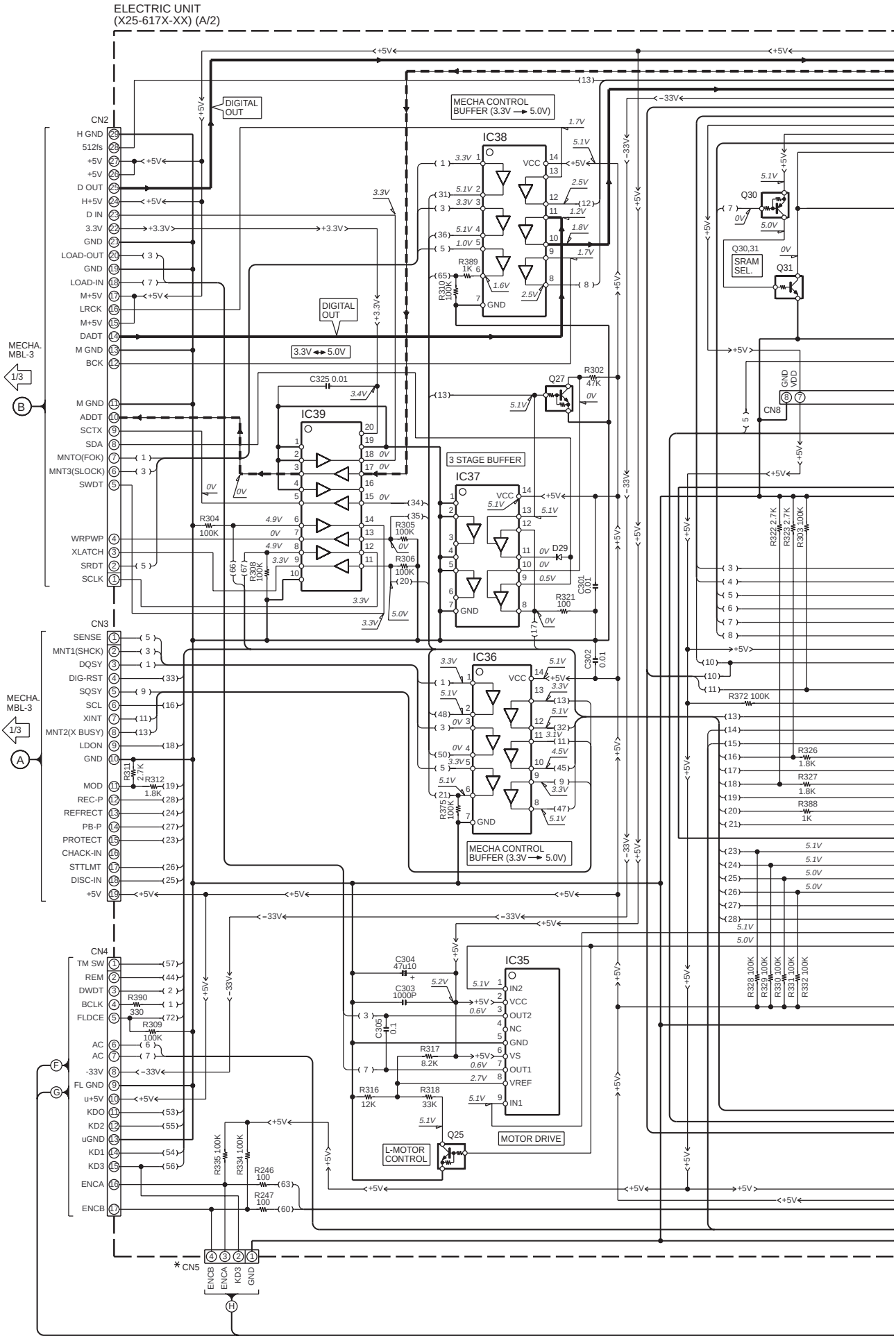


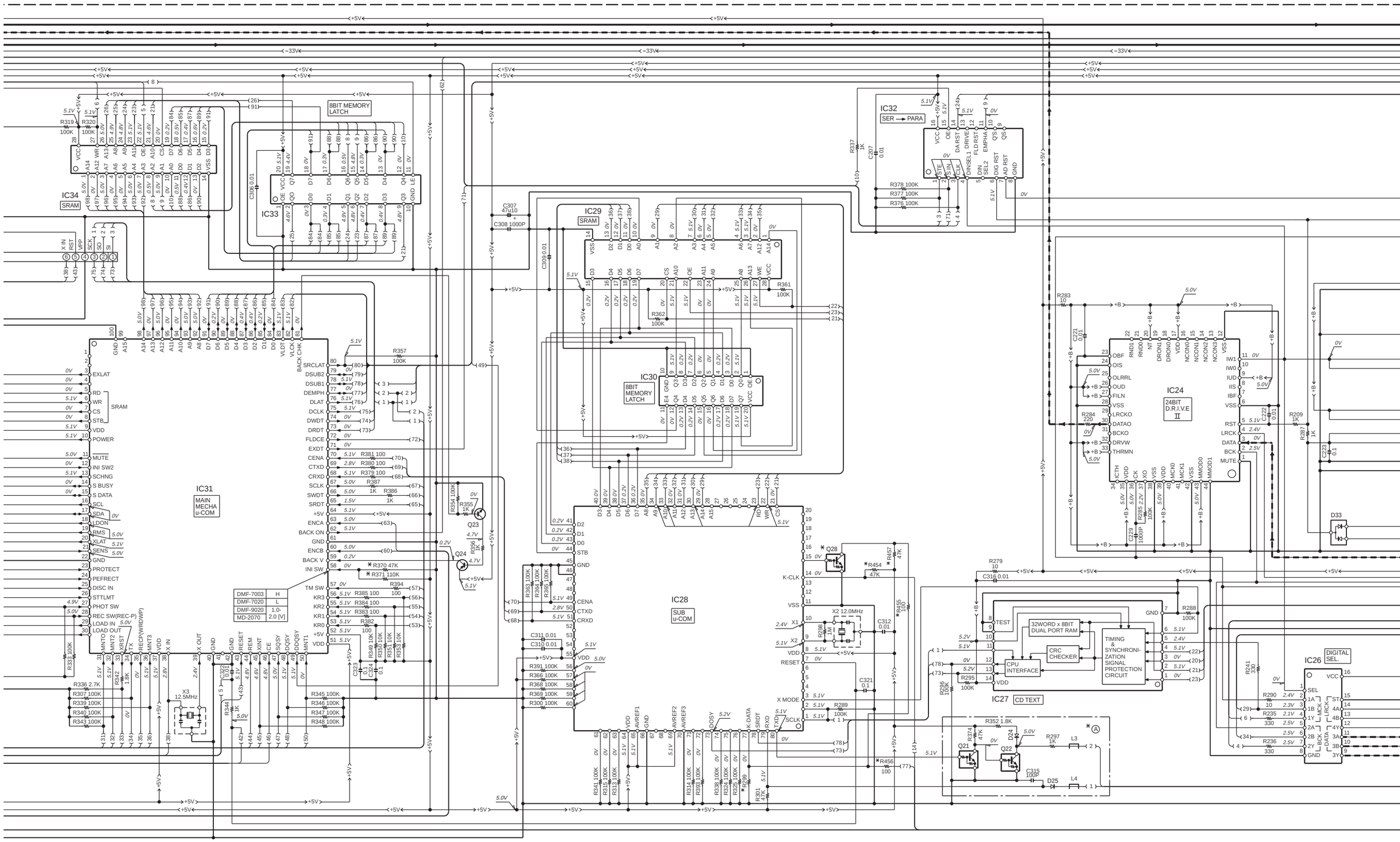
DMF-9020/9020(S)/MD-2070(K) (1/3)

DMF-9020/9020(S)/MD-2070

Y22-7880-11

KENWOOD


ELECTRIC UNIT
(X25-617X-XX) (A/2)
CN2
H GND
512fs
+5V
+5V
D OUT
H+5V
D IN
3.3V
GND
LOAD-OUT
GND
LOAD-IN
M+5V
LRCK
M+5V
DADT
M GND
BCK
M GND
ADDT
SCTX
SDA
MNTO(FOK)
MNT3(SLOCK)
SWDT
WRPWP
XLATCH
SRDT
SCLK
CN3
SENSE
MNT1(SHCK)
DQSY
DIG-RST
SQSY
SCL
XINT
MNT2(X BUSY)
LDON
GND
MOD
REC-P
REFRECT
PB-P
PROTECT
CHACK-IN
STTLMT
DISC-IN
+5V
CN4
TM SW
REM
DWDT
BCLK
FLDCE
AC
AC
-33V
FL GND
u+5V
KDO
KD2
uGND
KD1
KD3
ENCA
ENCB
MECHA. MBL-3
1/3
DIGITAL OUT
MECHA CONTROL BUFFER (3.3V → 5.0V)
IC38
3.3V ↔ 5.0V
C325 0.01
IC39
3 STAGE BUFFER
IC37
Q27
R302 47K
R304 100K
R305 100K
R306 100K
R308 100K
R309 100K
R310 100K
R311 2.7K
R312 1.8K
R389 1K
R390 330
R246 100
R247 100
R334 100K
R335 100K
IC36
MECHA CONTROL BUFFER (3.3V → 5.0V)
IC35
C304 47u10
C303 1000P
C305 0.1
R316 12K
R317 8.2K
R318 33K
L-MOTOR CONTROL
Q25
MOTOR DRIVE
Q30
Q30,31 SRAM SEL.
Q31
CN8
GND
VDD
D29
C301 0.01
C302 0.01
R321 100
R322 2.7K
R323 2.7K
R303 100K
R372 100K
R326 1.8K
R327 1.8K
R388 1K
R328 100K
R329 100K
R330 100K
R331 100K
R332 100K
CN5
ENCB
ENCA
KD3
GND



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

The DC voltage is an actual reading measured with a high impedance type voltmeter with no signal input. The measurement value may vary depending on the measuring instruments used or on the product.

AE AF AG AH AI AJ AK AL AM AN

IC22 (4/6)

IC22(5/6)

IC25
SAMPLING RATE CONVERTER

IC23
DIR/AC-3

IC1,2
IC PROTECTION

DIGITAL IN

AD CONVERTER

POWER ON/STANDBY SW

RESET IC

MASTER CLOCK

IC15 (1/4)

IC15 (2/4)

IC15 (3/4)

IC15 (4/4)

IC16

IC1

IC2

IC4

IC5

BACKUP CON.

CYBER TITLER

SYSTEM CONTROL

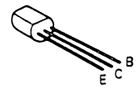
KEYBOARD

INPUTS				OUTPUTS
ST	SELECT	A	B	Y(157A)
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

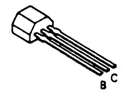
X : Don,t Care

IC1,2	: ICP-N10
IC4	: PST993D-T
IC5	: LM431AIZ
IC7	: AD1855
IC8	: CS5360
IC10,11	: NJM4580ED
IC13,14	: NJM4565M
IC15	: TC74AC86F
IC16	: TC74AC112F
IC17,18	: TC74HC164AF
IC21,22	: TC74HCU04AF
IC23	: LC8904Q
IC24	: KAN06
IC25	: SM5844AF
IC26	: TC74HC157AF
IC27	: LC89170M
IC28	: uPD784035GC836
IC29,34	: W24258S-70LE
IC30,33	: TC74HC373AF
IC31	: UPD784215GF533
IC32	: TC74HC4094AF
IC35	: TA8409S
IC36,38	: TC74HCT7007AF
IC37	: HD74HCT126FPEL
IC39	: TC74VHC244F
Q5,9,10,12,23,45	: 2SC4081(R,S)
Q6,20-22,25,27,28	: UN5212 or DTC124EUA
Q7	: 2SD2061(E,F) or 2SD2012
Q8,24,46	: 2SA1576A(R,S)
Q11	: 2SB1370(E,F) or 2SB1375
Q13,44	: 2SA954(L,K)
Q16-19	: 2SD1450(S,T)
Q30,32	: UN5112 or DTA124EUA
Q31	: UN5216 or DTC143TUA
Q42	: 2SC2003(L,K)
D1,11	: D3SBA20F03
D2,26,33	: DA204U
D3,18	: U1BC44
D6	: UDZ8.2B
D7	: UDZ2.7B
D8,12,17,22-25,29,31,32	: MA111
D9,10,21	: S5688B(TPB5)
D13	: UDZ5.6B
D14,15	: MA113
D16	: UDZ6.2B
D19	: UDZ18B
D20	: UDZ15B
D36-38	: DA204K

2SA954
2SC2003



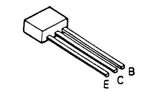
2SC2458



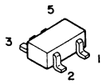
DTA144EUA
DTC114YUA
DTC143TUA
UN5216
2SC4081

2SB1370
2SD2061

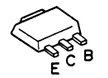
2SC3311A



FMW1

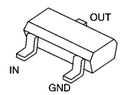


2SB798-DL

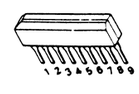


2SB1375
2SD2012

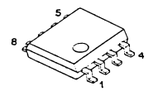
DTC114EUA



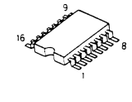
TA8409S



NJM4565MD
NJM4580ED



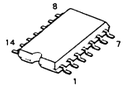
TC74HC4094AF



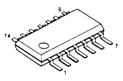
DA204K
DA204U

UN5212

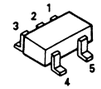
TC74AC86F
TC74HCT7007AF
TC74HCU04AF



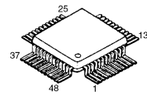
LC89170M



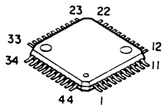
TC7S08FU



CXA2523AR
LC8904Q



KAN06



RECORDING LINE
DIGITAL LINE
SIGNAL LINE
GND LINE
+B LINE
−B LINE

DMF-7020 (X25-6170-00)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓒ	Ⓓ Ⓔ	R299, 370	R371, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
JAPAN	J2	0-00	YES	NO	YES	NO	NO	YES	NO	NO

MD-2070 (X25-6172-71)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓓ	Ⓒ Ⓔ	R299	R370,371, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
U.S.A.	K1	2-71	NO	YES	NO	YES	NO	YES	NO	YES
CANADA	P1									

DMF-9020 (X25-6172-71)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓓ	Ⓒ Ⓔ	R299	R370,371, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
U.K.	T1	2-71	NO	YES	NO	YES	NO	YES	NO	YES
EUROPE	E1									

DMF-9020(S) (X25-6172-71)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓓ	Ⓒ Ⓔ	R299	R370,371, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
U.K.	T2	2-71	NO	YES	NO	YES	NO	YES	NO	YES
EUROPE	E2									

DMF-7003 (X25-6170-01)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓓ	Ⓒ Ⓔ	R299, 371	R370, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
JAPAN	J	0-01	YES	NO	YES	NO	YES	NO	YES	NO

DMF-7003G (X25-6170-01)

DESTINATION		UNIT No.	Ⓐ Ⓑ Ⓓ	Ⓒ Ⓔ	R299, 371	R370, 454-457	CN5	CN7	E4	Q28
COUNTRY	ABB.									
JAPAN	J1	0-01	YES	NO	YES	NO	YES	NO	YES	NO

MD-2070(K,P) (2/3)
DMF-9020/9020(S) (T,E) (2/3)
DMF-7020/7003/7003G(J) (2/3)

Y22-7880-11

DMF-9020/9020(S)/MD-2070

KENWOOD

DISPLAY UNIT
(X14-4420-00) (A/2) : DMF-7003(J)/DMF-7003G(J1)

ED1

14G

P13 REPEAT
P14 FADE
P15 TITLE
P16 IN
P17 PGM
P18 SEARCH
P19 P20 COPY
P21 SINGLE
P22 TOTAL
P23 P24
P25 REMAIN

P17 L ∞ ◦ 40 ◦ 30 ◦ 21 ◦ 18 ◦ 15 ◦ 12 ◦ 9 ◦ 7 ◦ 5 ◦ 3 ◦ 1 ◦ 0 OVER (-dB) P33 L15

L1 P18 L2 P19 L3 P20 L4 P21 L5 P22 L6 P23 L7 P24 L8 P25 L9 P26 L10 P27 L11 P28 L12 P29 L13 P30 L14 P31

P3 R1 P4 R2 P5 R3 P6 R4 P7 R5 P8 R6 P9 R7 P10 R8 P11 R9 P12 R10 P13 R11 P14 R12 P15 R13 P16 R14

P32 OUT

P2 R ∞ ◦ 40 ◦ 30 ◦ 27 ◦ 24 ◦ 21 ◦ 18 ◦ 15 ◦ 12 ◦ 9 ◦ 6 ◦ 3 ◦ 0 OVER (-dB) P1 R15

P1 ANALOG
P2 DIGITAL
P3 1
P4 2
P5 3
P6 MONO
P7 32kHz
P8 MONITOR
P9 44.1kHz
P10 MANUAL
P12 48kHz
P11 A.PAUSE

15G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G 11G 12G 13G

P1 AM1 P2 AM2 P3 AM3 P4 AM4 P5 AM5
P6 AM6 P7 AM7 P8 AM8 P9 AM9 P10 AM10
P11 AM11 P12 AM12 P13 AM13 P14 AM14 P15 AM15
P16 AM16 P17 AM17 P18 AM18 P19 AM19 P20 AM20
P21 AM21 P22 AM22 P23 AM23 P24 AM24 P25 AM25
P26 AM26 P27 AM27 P28 AM28 P29 AM29 P30 AM30
P31 AM31 P32 AM32 P33 AM33 P34 AM34 P35 AM35
(1G-12G)

IC1
FL DRIVER
(BOTTOM VIEW)

Q1-5 BUFFER

CN1: ENCB, ENCA, KD3, KD1, UGND, KD2, KD0, U+5V, FL GND, -33V, AC5.9V, AC5.9V, DRCE, DRCK, DRDT, REM, TMSW

X25-CN4 2/3 F

S4 POWER
S5 S6 S7
S8 S9 S10 S11
S12 S13 FADE
S14 EDIT
S15 S16 TITLE INPUT
S17 REC INPUT
MONI-TOR
S20 ENTER
S21 REC MODE

REMOTE SENSOR A1: GND, VCC, DATA

S25 TIMER SW
HI: REC
MD: PLAY
LO: OFF

X25-A/2-CN4 2/3 G

X25-WH1 2/3 C

X25-CN5 2/3 H

X25-CN1 2/3 I

X25-A/2-WH1 2/3 D

X25-A/2-CN7 2/3 E

X25-A/2-CN1 2/3 J

IC1 : LC75710NED

Q1-5 : 2SC4081

D2 : RD5.6ES(B2) or HZS5.6N(B2)

ED1 : FIP12XM1GA or CM1777M

A1 : W02-2551-05

(X14-) (B/2)

CN3: L-FIX, L-VAL, GND, R-VAL, R-FIX

JOG DIAL PUSH SET

REC LEVEL

WH3 W144 P1 P2

E2: GND, SET, ENCA, ENCB

WH2 H

(X00-2840-00) (B/2) (J,J1)

WH3: AC18.5V, GND, AC18.5V, AC10V, AC5.9V, AC10V, AC29V, AC29V, AC5.9V

E1

CN5 CN3 F1 1.25A 125V

WH1 (GRY)
WH2 (WHT)

(X00-) (A/2)

CN1 AC100V 50/60Hz

MAIN POWER

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. For continued protection against risk of fire, replace only with same type and rating fuse(s). To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

(X14-) (E/5)

CN3: L-FIX, L-VAL, GND, GND, R-VAL, R-FIX

DISPLAY UNIT
(X14-4380-00) (B/5) : DMF-7020(J2)/MD-2070(K1,P1)/DMF-9020(T1,E1)/DMF-9020(S) (T2,E2)

ED1

14G

P13 REPEAT
P14 FADE
P15 TITLE
P16 IN
P17 PGM
P18 SEARCH
P19 P20 COPY
P21 SINGLE
P22 TOTAL
P23 P24
P25 REMAIN

P17 L ∞ ◦ 40 ◦ 30 ◦ 21 ◦ 18 ◦ 15 ◦ 12 ◦ 9 ◦ 7 ◦ 5 ◦ 3 ◦ 1 ◦ 0 OVER (-dB) P33 L15

L1 P18 L2 P19 L3 P20 L4 P21 L5 P22 L6 P23 L7 P24 L8 P25 L9 P26 L10 P27 L11 P28 L12 P29 L13 P30 L14 P31

P3 R1 P4 R2 P5 R3 P6 R4 P7 R5 P8 R6 P9 R7 P10 R8 P11 R9 P12 R10 P13 R11 P14 R12 P15 R13 P16 R14

P32 OUT

P2 R ∞ ◦ 40 ◦ 30 ◦ 27 ◦ 24 ◦ 21 ◦ 18 ◦ 15 ◦ 12 ◦ 9 ◦ 6 ◦ 3 ◦ 0 OVER (-dB) P1 R15

P1 ANALOG
P2 DIGITAL
P3 1
P4 2
P5 3
P6 MONO
P7 32kHz
P8 MONITOR
P9 44.1kHz
P10 MANUAL
P12 48kHz
P11 A.PAUSE

15G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G 11G 12G 13G

P1 AM1 P2 AM2 P3 AM3 P4 AM4 P5 AM5
P6 AM6 P7 AM7 P8 AM8 P9 AM9 P10 AM10
P11 AM11 P12 AM12 P13 AM13 P14 AM14 P15 AM15
P16 AM16 P17 AM17 P18 AM18 P19 AM19 P20 AM20
P21 AM21 P22 AM22 P23 AM23 P24 AM24 P25 AM25
P26 AM26 P27 AM27 P28 AM28 P29 AM29 P30 AM30
P31 AM31 P32 AM32 P33 AM33 P34 AM34 P35 AM35
(1G-12G)

DMF-7020 (X00-2840-01)

DESTINATION		UNIT No.	WH1,2	WH4,5	F1	TRANSFORMER
COUNTRY	ABB.					
JAPAN	J2	0-01	NO	YES	1.25A 125V	L07-2362-05

DM-2070 (X00-2840-11)

DESTINATION		UNIT No.	WH1,2	WH4,5	F1	TRANSFORMER
COUNTRY	ABB.					
U.S.A.	K1	0-11	YES	NO	1.25A 125V	L07-2412-05
CANADA	P1					

DMF-9020 (X00-2840-51)

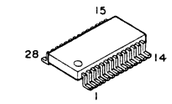
DESTINATION		UNIT No.	WH1,2	WH4,5	F1	TRANSFORMER
COUNTRY	ABB.					
U.K.	T1	0-51	YES	NO	T800mA L250V	L07-2270-05
EUROPE	E1					

DMF-9020(S) (X00-2840-51)

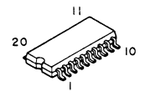
DESTINATION		UNIT No.	WH1,2	WH4,5	F1	TRANSFORMER
COUNTRY	ABB.					
U.K.	T2	0-51	YES	NO	T800mA L250V	L07-2270-05
EUROPE	E2					

RECORDING LINE
SIGNAL LINE
GND LINE
+B LINE
−B LINE

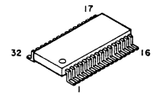
AD1855



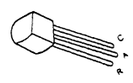
TC74HC373AF
TC74VHC244F



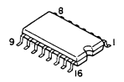
BH6511FS



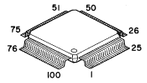
LM431AIZ



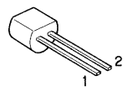
TC74AC112F
TC74HC157AF



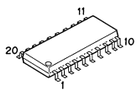
CXD2652AR



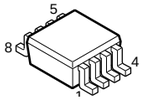
ICP-N10



TC74ACT540FS



TC7WU04FU



L88MS33T

HD74HCT126FPEL

IC1 : LC75710NED
IC2 : NJM4556AD

Q1-5 : 2SC3311A(Q,R) or 2SC2458(Y,GR)
Q7,8 : 2SD1450(S,T)

D2 : RD7.5JS(B) or HZS7.5S(B)
D4,5 : 1SS133 or HSS104

ED1 : FIP12XM1GA or CM1777M
A1 : W02-2571-05

IC1
FL DRIVER
(BOTTOM VIEW)

REMOTE SENSOR
TIMER SW
Hi : REC
Md : PLAY
Lo : OFF

REC LEVEL
BALANCE
MUTE
LEVEL
BUFFER AMP
BUFFER
HEADPHONE
MAIN POWER

(X00-2840-XX) (B/2)
TRANSFORMER
AC18.5V
AC10V
AC5.9V
AC29V
AUDIO
SYSTEM
SHIELD
-VFL

(X14-) (C/5)
(X14-) (A/5)
(X14-) (D/5)
(X00-) (A/2)

(J) : AC100V~ 50/60Hz
(K,P) : AC120V 60Hz
(T,E) : AC230V~ 50Hz

MD-2070(K,P) (3/3)
DMF-9020/9020(S) (T,E) (3/3)
DMF-7020/7003/7003G(J) (3/3)

The DC voltage is an actual reading measured with a high impedance type voltmeter with no signal input. The measurement value may vary depending on the measuring instruments used or on the product.

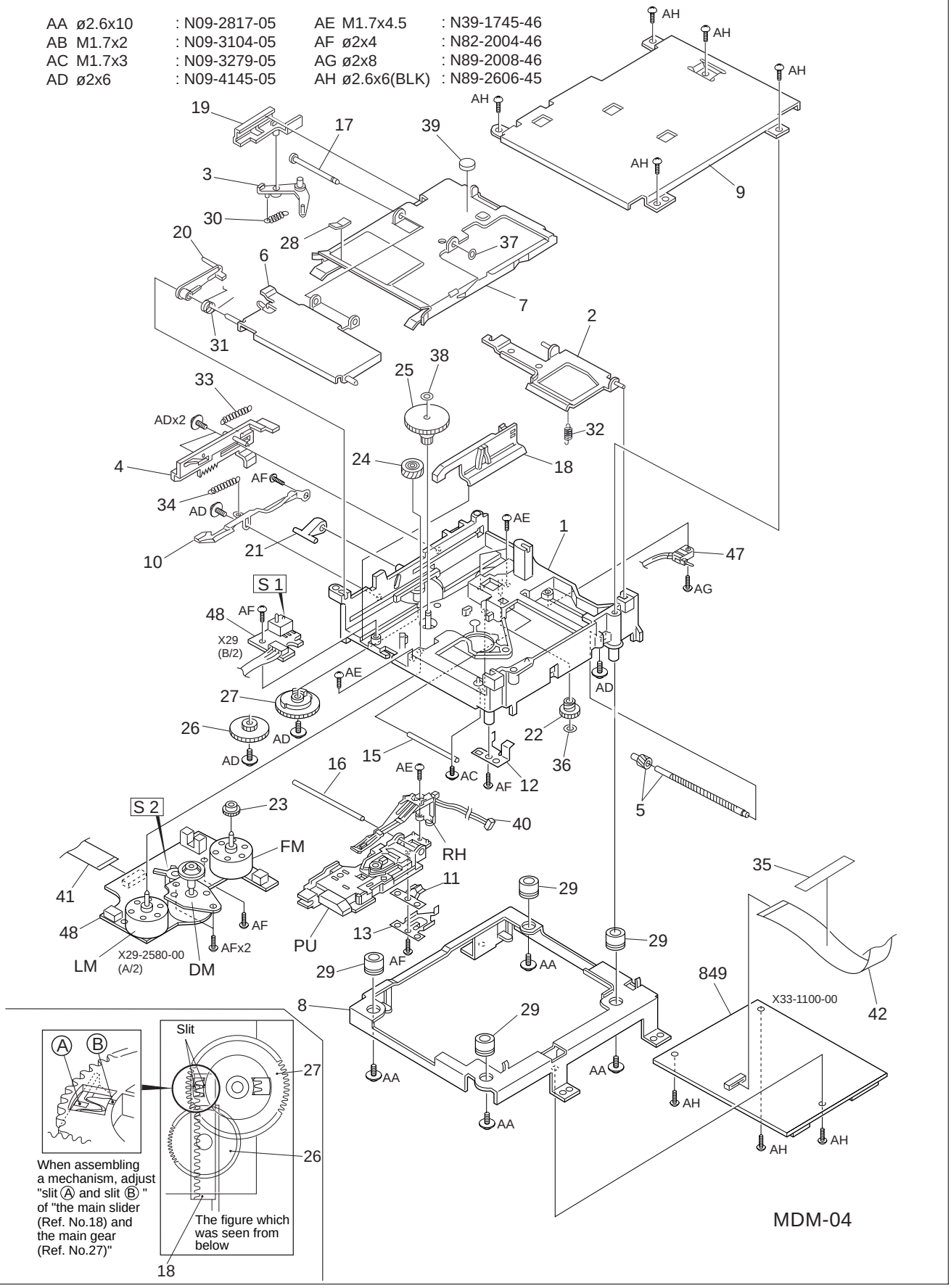
Y22-7880-11

DMF-9020/9020(S)/MD-2070

KENWOOD

EXPLODED VIEW (MECHANISM)

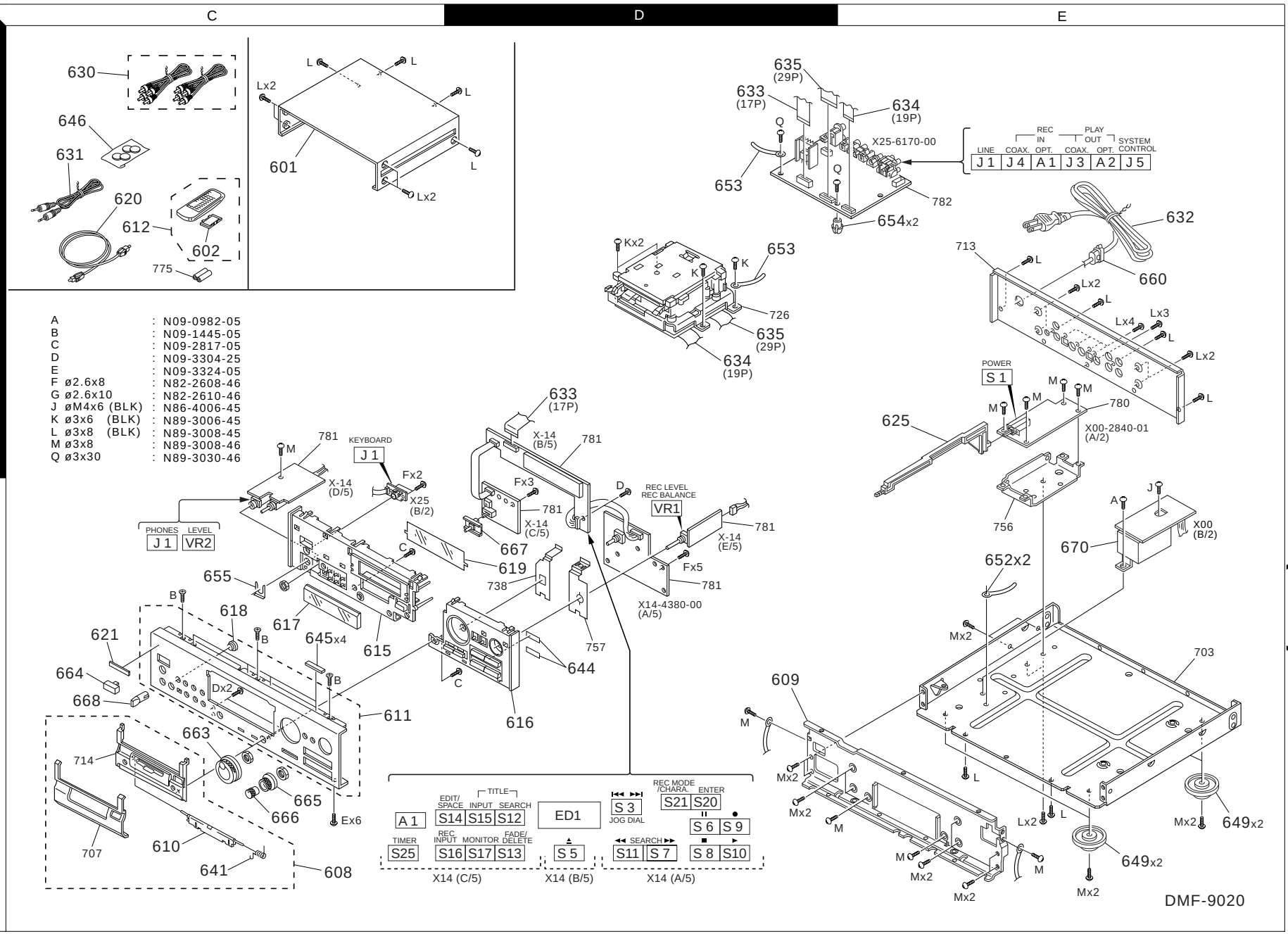
AA ø2.6x10	: N09-2817-05	AE M1.7x4.5	: N39-1745-46
AB M1.7x2	: N09-3104-05	AF ø2x4	: N82-2004-46
AC M1.7x3	: N09-3279-05	AG ø2x8	: N89-2008-46
AD ø2x6	: N09-4145-05	AH ø2.6x6(BLK)	: N89-2606-45



Parts with exploded view numbers larger than 700 are not supplied.

DMF-9020/9020(S)/MD-2070

EXPLODED VIEW (UNIT)



Parts with exploded view numbers larger than 700 are not supplied.

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❶

Ref. No	Address	New Parts	Parts No.	Description	Destination	Remarks
DMF-9020 / 9020(S) / MD-2070						
601	1C	✻	A01-3449-01	METALLIC CABINET	T1E1	
601	1C		A01-3625-01	METALLIC CABINET	E2	
601	1C		A01-3625-01	METALLIC CABINET	K1P1T2	
602	1C		A09-1106-08	BATTERY COVER		
608	2C	✻	A21-3742-03	DRESSING PANEL ASSY	K1P1	
608	2C	✻	A21-3744-03	DRESSING PANEL ASSY	T2E2	
608	2C	✻	A21-3756-03	DRESSING PANEL ASSY	T1E1	
609	2D		A22-1766-32	SUB PANEL		
610	2C		A29-0868-24	PANEL	T1E1	
610	2C	✻	A29-1039-04	PANEL	E2	
610	2C	✻	A29-1039-04	PANEL	K1P1T2	
611	2C	✻	A60-1522-02	PANEL ASSY	K1P1	
611	2C	✻	A60-1524-02	PANEL ASSY	T1E1	
611	2C	✻	A60-1568-02	PANEL ASSY	T2E2	
612	1C	✻	A70-1255-05	REMOTE CONTROLLER ASSY		
615	2C	✻	B07-2348-31	ESCUTCHEON	T1E1	
615	2C	✻	B07-2449-01	ESCUTCHEON	E2	
615	2C	✻	B07-2449-01	ESCUTCHEON	K1P1T2	
616	2D		B07-2361-22	ESCUTCHEON ASSY	T1E1	
616	2D	✻	B07-2450-02	ESCUTCHEON ASSY	E2	
616	2D	✻	B07-2450-02	ESCUTCHEON ASSY	K1P1T2	
617	2C		B10-2362-04	FRONT GLASS		
618	2C		B11-0237-14	COLOR FILTER		
619	2D		B11-0356-04	COLOR FILTER		
620	1C		B19-1529-05	OPTICAL FIBER		
621	2C		B43-0302-04	KENWOOD BADGE		
-			B46-0310-03	WARRANTY CARD	E2	
-			B46-0310-03	WARRANTY CARD	T1E1T2	
-			B46-0328-03	WARRANTY CARD	K1	
-			B46-0336-03	WARRANTY CARD	P1	
-			B58-0945-03	CAUTION CARD	T1T2	
-		✻	B60-4101-00	INSTRUCTION MANUAL(EN)	K1P1T1	
-		✻	B60-4101-00	INSTRUCTION MANUAL(EN)	T2	
-		✻	B60-4102-00	INSTRUCTION MANUAL(FR)	P1E1E2	
-		✻	B60-4103-00	INSTRUCTION MANUAL(GE)	E1E2	
-		✻	B60-4104-00	INSTRUCTION MANUAL(NE)	E1E2	
-		✻	B60-4105-00	INSTRUCTION MANUAL(IT)	E1E2	
-		✻	B60-4106-00	INSTRUCTION MANUAL(ES)	E1E2	
625	1E		D21-1891-03	EXTENSION SHAFT		
630	1C		E30-0505-05	AUDIO CORD		
631	1C		E30-2733-05	CORD WITH PLUG		
⚠ 632	1E		E30-2592-15	AC POWER CORD	E1E2	
⚠ 632	1E		E30-2721-05	AC POWER CORD	T1T2	
⚠ 632	1E		E30-2882-05	AC POWER CORD	K1P1	
633	1D		E31-7804-05	WIRING HARNESS 17P		
634	1D, 1E		E35-1890-05	FLAT CABLE 19P		
635	1D		E35-1960-05	FLAT CABLE 29P		
641	2C		G01-4044-14	TORSION COIL SPRING		
644	2D		G10-0464-04	NON-WOVEN FABRIC		
645	2C		G11-0155-14	SOFT TAPE (40X9X2)		
646	1C		G16-0910-04	SHEET	K1P1	
-			G10-0458-04	NON-WOVEN FABRIC		

L : Scandinavia **K :** USA **P :** Canada **R :** Mexico **C :** China **I :** Malaysia
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Y : AAFES(Europe) **X :** Australia **Q :** Russia **H :** Korea **M :** Other Areas ⚠ indicates safety critical components.

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❷

Ref. No	Address	New Parts	Parts No.	Description	Destination	Remarks
-		✻	H10-7546-02	POLYSTYRENE FOAMED FIXTURE		
-		✻	H10-7547-02	POLYSTYRENE FOAMED FIXTURE		
-			H11-0088-04	POLYSTYRENE FOAMED BOARD		
-		✻	H12-2457-04	PACKING FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	E2	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	K1P1E1	
-			H25-0368-04	PROTECTION BAG		
-			H25-0651-04	PROTECTION BAG	T1T2	
-		✻	H50-3109-04	ITEM CARTON CASE	T1E1	
-		✻	H50-3110-04	ITEM CARTON CASE	T2E2	
-		✻	H50-3111-04	ITEM CARTON CASE	K1P1	
649	2E	✻	J02-1442-05	FOOT	T1E1	
649	2E	✻	J02-1443-05	FOOT	E2	
649	2E	✻	J02-1443-05	FOOT	K1P1T2	
652	2E		J19-0306-05	LEAD HOLDER		
653	1D		J19-2808-05	HOLDER		
654	1E		J19-3703-14	UNIT HOLDER		
655	2C		J21-3326-05	JACK MOUNTING HARDWARE		
⚠ 660	1E		J42-0083-05	POWER CORD BUSHING		
-			J30-0470-04	SPACER		
-			J61-0307-05	WIRE BAND		
663	2C		K29-6700-03	KNOB JOG	T1E1	
663	2C	✻	K29-7485-03	KNOB JOG	E2	
663	2C	✻	K29-7485-03	KNOB JOG	K1P1T2	
664	2C		K27-2178-04	KNOB (BUTTON)	T1E1	
664	2C		K29-7418-04	KNOB POWER	E2	
664	2C		K29-7418-04	KNOB POWER	K1P1T2	
665	2C		K29-6692-04	KNOB REC BAL	T1E1	
665	2C	✻	K29-7483-04	KNOB REC BAL	E2	
665	2C	✻	K29-7483-04	KNOB REC BAL	K1P1T2	
666	2C		K29-6695-14	KNOB REC LEVEL	T1E1	
666	2C	✻	K29-7484-04	KNOB REC LEVEL	E2	
666	2C	✻	K29-7484-04	KNOB REC LEVEL	K1P1T2	
667	2D		K29-6697-04	KNOB TIMER		
668	2C		K29-3741-04	KNOB PHONES	T1E1	
668	2C	✻	K29-7486-04	KNOB PHONES	E2	
668	2C	✻	K29-7486-04	KNOB PHONES	K1P1T2	
⚠ 670	2E		L07-2270-05	POWER TRANSFORMER	E2	
⚠ 670	2E		L07-2270-05	POWER TRANSFORMER	T1E1T2	
⚠ 670	2E		L07-2412-05	POWER TRANSFORMER	K1P1	
-			L92-0039-05	FERRITE CORE		
POWER SUPPLY (X00-2840-11)						
⚠ C1~3			C91-1488-05	MF 6800PF 250VAC		
⚠ CN1			E40-4245-05	PIN ASSY		
⚠ F1			F05-8013-05	FUSE (SEMKO) (250V T800MAL)	E2	
⚠ F1			F05-8013-05	FUSE (SEMKO) (250V T800MAL)	T1E1T2	
⚠ F1			F50-0068-05	FUSE(5X20)	K1P1	
CN3			J13-0075-05	FUSE CLIP		
CN5			J13-0075-05	FUSE CLIP		
⚠ L1			L79-0733-05	LINE FILTER		

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❸

Ref. No	Address	New Parts	Parts No.	Description			Destination	Remarks
⚠ S1			S40-1153-05	PUSH SWITCH				
DISPLAY (X14-4380-00)								
C3			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C4			C90-3212-05	ELECTRO	47UF	6.3WV		
C5			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C6			CC45FSL1H101J	CERAMIC	100PF	J		
C7			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C8			C90-3209-05	ELECTRO	10UF	6.3WV		
C9			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C10~12			CK45FB1H102K	CERAMIC	1000PF	K		
C13			C90-3244-05	ELECTRO	10UF	35WV		
C14			CK45FB1H102K	CERAMIC	1000PF	K		
C15			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C16, 17			CC45FSL1H221J	CERAMIC	220PF	J		
C19, 20			CC45FSL1H101J	CERAMIC	100PF	J		
C21			CQ93FMG1H103J	MYLAR	0.010UF	J		
C22			CC45FSL1H101J	CERAMIC	100PF	J		
C23, 24			CE04KW1C220M	ELECTRO	22UF	16WV		
C27, 28			CK45FB1H471K	CERAMIC	470PF	K		
C29, 30			CK45FB1H102K	CERAMIC	1000PF	K		
C31, 32			CC45FSL1H270J	CERAMIC	27PF	J		
C33, 34			CE04HW1HR22M	NP-ELEC	0.22UF	50WV		
C35			CF92FV1H104J	MF-C	0.10UF	J		
CN1			E40-4942-05	FLAT CABLE CONNECTOR				
CN3			E40-3264-05	PIN ASSY				
J1			E11-0190-05	PHONE JACK	(3P)			
E3			J11-0809-05	WIRE CLAMPER				
L1, 2			L92-0044-05	FERRITE CORE				
VR1			R31-0089-05	VARIABLE RESISTOR				
VR2			R10-4043-05	POTENTIOMETER(50K)				
S5~17			S70-0031-05	TACT SWITCH				
S20, 21			S70-0031-05	TACT SWITCH				
S25			S62-0060-05	SLIDE SWITCH				
S3			T99-0593-05	ROTARY ENCODER				
D2			HZS7.5S(B)	ZENER DIODE				
D2			RD7.5JS(B)	ZENER DIODE				
D4, 5			HSS104	DIODE				
D4, 5			1SS133	DIODE				
ED1			CM1777M	INDICATOR TUBE				
ED1			FIP12XM1GA	INDICATOR TUBE				
IC1			LC75710NED	MOS-IC				
IC2		✻	NJM4556AD	ANALOGUE IC				
Q1~5			2SC2458(Y,GR)	TRANSISTOR				
Q1~5			2SC3311A(Q,R)	TRANSISTOR				
Q7, 8			2SD1450(S,T)	TRANSISTOR				
A1			W02-2571-05	OPTIC RECEIVING MODULE				
ELECTRIC (X25-6172-71)								
C1, 2			CE04KW1C222M	ELECTRO	2200UF	16WV		
C3			CE04KW1C470M	ELECTRO	47UF	16WV		

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❹

Ref. No	Address	New Parts	Parts No.	Description			Destination	Remarks
C4			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C5, 6			CK73FF1C105Z	CHIP C	1.0UF	Z		
C10			CC73FSL1H101J	CHIP C	100PF	J		
C13			CE04KW1C221M	ELECTRO	220UF	16WV		
C15~17			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C18			CK73FB1H103K	CHIP C	0.010UF	K		
C19			CE04KW1C470M	ELECTRO	47UF	16WV		
C20, 21			CE04KW1C472M	ELECTRO	4700UF	16WV		
C22			CK73FB1H103K	CHIP C	0.010UF	K		
C23			CE04KW1C220M	ELECTRO	22UF	16WV		
C24			CC73FSL1H101J	CHIP C	100PF	J		
C25			CE04KW1A101M	ELECTRO	100UF	10WV		
C26, 27			CK73FB1H103K	CHIP C	0.010UF	K		
C28			CE04KW1A471M	ELECTRO	470UF	10WV		
C29, 30			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C31			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C32			C90-3542-05	SUPER-C	1.0F	5.5WV		
C33			CE04KW1A101M	ELECTRO	100UF	10WV		
C34			CK73FB1H103K	CHIP C	0.010UF	K		
C35			CC73FSL1H101J	CHIP C	100PF	J		
C36			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C37			CE04KW1H101M	ELECTRO	100UF	50WV		
C38			CE04KW1H100M	ELECTRO	10UF	50WV		
C39			CC73FSL1H101J	CHIP C	100PF	J		
C40			CE04KW1H100M	ELECTRO	10UF	50WV		
C41			CE04KW1C332M	ELECTRO	3300UF	16WV		
C42			CE04KW1H100M	ELECTRO	10UF	50WV		
C47			CE04KW1A101M	ELECTRO	100UF	10WV		
C48			CC73FSL1H102J	CHIP C	1000PF	J		
C91			CK73FB1H103K	CHIP C	0.010UF	K		
C92			CE04KW1A101M	ELECTRO	100UF	10WV		
C93			CE04KW1H100M	ELECTRO	10UF	50WV		
C94		✻	C90-3840-05	ELECTRO	22UF	25WV		
C95			CC73FSL1H102J	CHIP C	1000PF	J		
C99			CK73FB1H103K	CHIP C	0.010UF	K		
C101			CE04KW1A101M	ELECTRO	100UF	10WV		
C103			CE04KW1A101M	ELECTRO	100UF	10WV		
C104, 105			CQ93FMG1H471J	MYLAR	470PF	J		
C108~112			CC73FSL1H101J	CHIP C	100PF	J		
C121, 122			CC73FSL1H102J	CHIP C	1000PF	J		
C123, 124			CC73FSL1H101J	CHIP C	100PF	J		
C125, 126			CC45FSL1H220J	CERAMIC	22PF	J		
C127~130			CC45FSL1H221J	CERAMIC	220PF	J		
C132			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C133, 134			CQ93FMG1H103J	MYLAR	0.010UF	J		
C135			CQ93FMG1H182J	MYLAR	1800PF	J		
C136, 137			CC45FSL1H101J	CERAMIC	100PF	J		
C138			CQ93FMG1H182J	MYLAR	1800PF	J		
C139, 140			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C142			CE04KW1H470M	ELECTRO	47UF	50WV		
C143, 144			CQ93FMG1H102J	MYLAR	1000PF	J		
C146			CQ93FMG1H472J	MYLAR	4700PF	J		
C148			CQ93FMG1H472J	MYLAR	4700PF	J		
C149~152			CE04KW1V220M	ELECTRO	22UF	35WV		
C153			CC45FSL1H470J	CERAMIC	47PF	J		

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C154, 155			CC45FSL1H100D	CERAMIC	10PF	D		
C156			CC45FSL1H470J	CERAMIC	47PF	J		
C157~160			CC45FSL1H101J	CERAMIC	100PF	J		
C162			CQ93FMG1H473J	MYLAR	0.047UF	J		
C163, 164			CE04KW1V220M	ELECTRO	22UF	35WV		
C165, 166			CC73FSL1H330J	CHIP C	33PF	J		
C167, 168			CC45FSL1H101J	CERAMIC	100PF	J		
C169~172			CC73FSL1H101J	CHIP C	100PF	J		
C175~178			CC73FSL1H331J	CHIP C	330PF	J		
C180, 181			CC45FSL1H101J	CERAMIC	100PF	J		
C182			CE04KW1C100M	ELECTRO	10UF	16WV		
C183, 184			CC73FSL1H221J	CHIP C	220PF	J		
C191			CE04HW1H2R2M	NP-ELEC	2.2UF	50WV		
C201			CK73FB1H103K	CHIP C	0.010UF	K		
C202			CC73FSL1H220J	CHIP C	22PF	J		
C203			CK73FB1H103K	CHIP C	0.010UF	K		
C205, 206			CC73FSL1H220J	CHIP C	22PF	J		
C207			CK73FB1H103K	CHIP C	0.010UF	K		
C208			CC73FSL1H100J	CHIP C	10PF	J		
C209~211			CK73FF1E104Z	CHIP C	0.10UF	Z		
C212			CK73FB1H103K	CHIP C	0.010UF	K		
C213			CC73FSL1H220J	CHIP C	22PF	J		
C214			CK73FB1H103K	CHIP C	0.010UF	K		
C215			CE04KW1C470M	ELECTRO	47UF	16WV		
C216, 217			CK73FB1H103K	CHIP C	0.010UF	K		
C218			CK73FB1H102K	CHIP C	1000PF	K		
C219			CK73FF1E104Z	CHIP C	0.10UF	Z		
C220~222			CK73FB1H103K	CHIP C	0.010UF	K		
C223			CK73FF1E104Z	CHIP C	0.10UF	Z		
C224			CK73FB1H103K	CHIP C	0.010UF	K		
C225			CC73FSL1H101J	CHIP C	100PF	J		
C226, 227			CC73FSL1H220J	CHIP C	22PF	J		
C228, 229			CK73FB1H102K	CHIP C	1000PF	K		
C230			CK73FB1H103K	CHIP C	0.010UF	K		
C231			CE04KW1C470M	ELECTRO	47UF	16WV		
C232			CC73FSL1H151J	CHIP C	150PF	J		
C241			CE04KW1H470M	ELECTRO	47UF	50WV		
C290			CK73FB1H103K	CHIP C	0.010UF	K		
C301, 302			CK73FB1H103K	CHIP C	0.010UF	K		
C303			CK73FB1H102K	CHIP C	1000PF	K		
C304			CE04KW1A470M	ELECTRO	47UF	10WV		
C305			CK73FF1E104Z	CHIP C	0.10UF	Z		
C306			CK73FB1H103K	CHIP C	0.010UF	K		
C307			CE04KW1A470M	ELECTRO	47UF	10WV		
C308			CK73FB1H102K	CHIP C	1000PF	K		
C309~312			CK73FB1H103K	CHIP C	0.010UF	K		
C316, 317			CK73FB1H103K	CHIP C	0.010UF	K		
C321			CK73FF1E104Z	CHIP C	0.10UF	Z		
C322			CK73FB1H103K	CHIP C	0.010UF	K		
C323, 324			CK73FF1E104Z	CHIP C	0.10UF	Z		
C325			CK73FB1H103K	CHIP C	0.010UF	K		
C401			CK73FB1H103K	CHIP C	0.010UF	K		
C402			CC73FCH1H100D	CHIP C	10PF	D		
C403			CC73FCH1H150J	CHIP C	15PF	J		
C404			CK73FB1H102K	CHIP C	1000PF	K		

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C405			CK73FB1H103K	CHIP C	0.010UF	K			
C406			CK73FB1H102K	CHIP C	1000PF	K			
C407			CK73FF1E104Z	CHIP C	0.10UF	Z			
C408			CK73FB1H102K	CHIP C	1000PF	K			
C409			CK73FF1C105Z	CHIP C	1.0UF	Z			
C410			CC73FCH1H680J	CHIP C	68PF	J			
C411			CC73FCH1H330J	CHIP C	33PF	J			
C451, 452			CC73FSL1H221J	CHIP C	220PF	J			
C453			CK73FF1C105Z	CHIP C	1.0UF	Z			
CN1			E40-4807-05	PIN ASSY					
CN2		✻	E40-8310-05	FLAT CABLE CONNECTOR					
CN3		✻	E40-8311-05	FLAT CABLE CONNECTOR					
CN4			E40-4904-05	FLAT CABLE CONNECTOR					
CN7			E40-3251-05	PIN ASSY					
CN14			E40-4294-05	FLAT CABLE CONNECTOR					
J1		✻	E63-1066-05	PHONO JACK					
J3			E63-0174-05	PHONO JACK					
J4			E63-1059-05	PHONO JACK					
J5			E11-0188-05	MINIATURE PHONE JACK(2P)					
J7		✻	E56-0022-05	CYLINDRICAL RECEPTACLE					
L1, 2			L92-0131-05	FERRITE CORE					
X1			L77-1124-05	CRYSTAL RESONATOR					
X2			L78-0277-05	RESONATOR	(12.000M)				
X3			L78-0615-05	RESONATOR	(12.5MHZ)				
R6			RK73FB2A182J	CHIP R	1.8K	J	1/10W		
R7			RK73FB2A751J	CHIP R	750	J	1/10W		
R8			RK73FB2A472J	CHIP R	4.7K	J	1/10W		
R9			RK73FB2A103J	CHIP R	10K	J	1/10W		
R10, 11			RK73FB2A681J	CHIP R	680	J	1/10W		
R12			RK73FB2A101J	CHIP R	100	J	1/10W		
R13			RK73FB2A104J	CHIP R	100K	J	1/10W		
R14			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R15			RK73FB2A104J	CHIP R	100K	J	1/10W		
R16			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R17			RK73FB2A101J	CHIP R	100	J	1/10W		
R18			RK73FB2A473J	CHIP R	47K	J	1/10W		
R19			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R20			R92-1861-05	CHIP R	1.62K	F	1/8W		
R21			R92-1860-05	CHIP R	1.50K	F	1/8W		
R22			RK73FB2A222J	CHIP R	2.2K	J	1/10W		
R23			RK73FB2A4R7J	CHIP R	4.7	J	1/10W		
R24			RK73FB2A1R0J	CHIP R	1	J	1/10W		
⚠ R27			RD14NB2E1R0J	RD	1	J	1/4W		
R32, 33			RK73FB2A472J	CHIP R	4.7K	J	1/10W		
R35			RK73FB2A103J	CHIP R	10K	J	1/10W		
R44			RK73FB2A221J	CHIP R	220	J	1/10W		
⚠ R45			RD14NB2E1R0J	RD	1	J	1/4W		
R46			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R47			RK73FB2A103J	CHIP R	10K	J	1/10W		
R48			RK73FB2A912J	CHIP R	9.1K	J	1/10W		
R49			RK73FB2A222J	CHIP R	2.2K	J	1/10W		
R82~85			RK73FB2A182J	CHIP R	1.8K	J	1/10W		
R96			RK73FB2A471J	CHIP R	470	J	1/10W		
R97			RK73FB2A2R2J	CHIP R	2.2	J	1/10W		

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R98, 99			RK73FB2A100J	CHIP R	10	J	1/10W		
R100			RK73FB2A2R2J	CHIP R	2.2	J	1/10W		
R101			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R102, 103			RK73FB2A473J	CHIP R	47K	J	1/10W		
R104			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R105, 106			RK73FB2A151J	CHIP R	150	J	1/10W		
R107			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R108, 109			RK73FB2A151J	CHIP R	150	J	1/10W		
R110~113			RK73FB2A224J	CHIP R	220K	J	1/10W		
R114			RK73FB2A101J	CHIP R	100	J	1/10W		
R115			RK73FB2A682J	CHIP R	6.8K	J	1/10W		
R116		✻	RN73FH2A133D	CHIP R	13K	D	1/10W		
R117, 118			RK73FB2A331J	CHIP R	330	J	1/10W		
R119		✻	RN73FH2A133D	CHIP R	13K	D	1/10W		
R120			RK73FB2A682J	CHIP R	6.8K	J	1/10W		
R121			RK73FB2A101J	CHIP R	100	J	1/10W		
R122, 123			RK73FB2A622J	CHIP R	6.2K	J	1/10W		
R124			RK73FB2A334J	CHIP R	330K	J	1/10W		
R125			RK73FB2A104J	CHIP R	100K	J	1/10W		
R126			RK73FB2A473J	CHIP R	47K	J	1/10W		
R127			RK73FB2A470J	CHIP R	47	J	1/10W		
R140~142			RK73FB2A470J	CHIP R	47	J	1/10W		
R143, 144			RK73FB2A101J	CHIP R	100	J	1/10W		
R145			RK73FB2A202J	CHIP R	2.0K	J	1/10W		
R146, 147			RK73FB2A473J	CHIP R	47K	J	1/10W		
R150~155			RK73FB2A202J	CHIP R	2.0K	J	1/10W		
R156			RK73FB2A470J	CHIP R	47	J	1/10W		
R157			RK73FB2A202J	CHIP R	2.0K	J	1/10W		
R158~163			RK73FB2A821J	CHIP R	820	J	1/10W		
R164, 165			RK73FB2A104J	CHIP R	100K	J	1/10W		
R166			RK73FB2A470J	CHIP R	47	J	1/10W		
R167, 168			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R169			RK73FB2A470J	CHIP R	47	J	1/10W		
R170			RK73FB2A101J	CHIP R	100	J	1/10W		
R171, 172			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R173~175			RK73FB2A101J	CHIP R	100	J	1/10W		
R176			RK73FB2A331J	CHIP R	330	J	1/10W		
R180			RK73FB2A334J	CHIP R	330K	J	1/10W		
R185, 186			RK73FB2A470J	CHIP R	47	J	1/10W		
R187~189			RK73FB2A331J	CHIP R	330	J	1/10W		
R190			RK73FB2A470J	CHIP R	47	J	1/10W		
R191, 192			RD14NB2E332J	RD	3.3K	J	1/4W		
R193, 194			RK73FB2A470J	CHIP R	47	J	1/10W		
R195, 196			RK73FB2A101J	CHIP R	100	J	1/10W		
R201			RK73FB2A104J	CHIP R	100K	J	1/10W		
R202			RK73FB2A473J	CHIP R	47K	J	1/10W		
R203			RK73FB2A224J	CHIP R	220K	J	1/10W		
R204			RK73FB2A104J	CHIP R	100K	J	1/10W		
R205			RK73FB2A473J	CHIP R	47K	J	1/10W		
R206			RK73FB2A224J	CHIP R	220K	J	1/10W		
R207			RK73FB2A101J	CHIP R	100	J	1/10W		
R209			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R210			RK73FB2A104J	CHIP R	100K	J	1/10W		
R211			RK73FB2A221J	CHIP R	220	J	1/10W		
R212, 213			RK73FB2A151J	CHIP R	150	J	1/10W		

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R214~216			RK73FB2A750J	CHIP R	75	J	1/10W		
R217			RK73FB2A470J	CHIP R	47	J	1/10W		
R218			RK73FB2A150J	CHIP R	15	J	1/10W		
R219			RK73FB2A221J	CHIP R	220	J	1/10W		
R220			RK73FB2A151J	CHIP R	150	J	1/10W		
R221			RK73FB2A104J	CHIP R	100K	J	1/10W		
R222			RK73FB2A333J	CHIP R	33K	J	1/10W		
R223~230			RK73FB2A104J	CHIP R	100K	J	1/10W		
R231			RK73FB2A243J	CHIP R	24K	J	1/10W		
R232, 233			RK73FB2A562J	CHIP R	5.6K	J	1/10W		
R234			RK73FB2A151J	CHIP R	150	J	1/10W		
R235~237			RK73FB2A331J	CHIP R	330	J	1/10W		
R238			RK73FB2A471J	CHIP R	470	J	1/10W		
R239			RK73FB2A331J	CHIP R	330	J	1/10W		
R240			RK73FB2A221J	CHIP R	220	J	1/10W		
R241			RK73FB2A331J	CHIP R	330	J	1/10W		
R244, 245			RK73FB2A222J	CHIP R	2.2K	J	1/10W		
R246, 247			RK73FB2A101J	CHIP R	100	J	1/10W		
R277			RK73FB2A1R0J	CHIP R	1	J	1/10W		
R278, 279			RK73FB2A100J	CHIP R	10	J	1/10W		
R280			RK73FB2A471J	CHIP R	470	J	1/10W		
R281~283			RK73FB2A100J	CHIP R	10	J	1/10W		
R284			RK73FB2A221J	CHIP R	220	J	1/10W		
R285			RK73FB2A104J	CHIP R	100K	J	1/10W		
R286, 287			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R288, 289			RK73FB2A104J	CHIP R	100K	J	1/10W		
R290			RK73FB2A100J	CHIP R	10	J	1/10W		
R292			RK73FB2A104J	CHIP R	100K	J	1/10W		
R293			RK73FB2A331J	CHIP R	330	J	1/10W		
R294~296			RK73FB2A104J	CHIP R	100K	J	1/10W		
R298			RK73FB2A105J	CHIP R	1.0M	J	1/10W		
R300			RK73FB2A104J	CHIP R	100K	J	1/10W		
R301, 302			RK73FB2A473J	CHIP R	47K	J	1/10W		
R303~310			RK73FB2A104J	CHIP R	100K	J	1/10W		
R311			RK73FB2A272J	CHIP R	2.7K	J	1/10W		
R312			RK73FB2A182J	CHIP R	1.8K	J	1/10W		
R313~315			RK73FB2A104J	CHIP R	100K	J	1/10W		
R316			RK73FB2A123J	CHIP R	12K	J	1/10W		
R317			RK73FB2A822J	CHIP R	8.2K	J	1/10W		
R318			RK73FB2A333J	CHIP R	33K	J	1/10W		
R319~321			RK73FB2A104J	CHIP R	100K	J	1/10W		
R322, 323			RK73FB2A272J	CHIP R	2.7K	J	1/10W		
R324, 325			RK73FB2A104J	CHIP R	100K	J	1/10W		
R326, 327			RK73FB2A182J	CHIP R	1.8K	J	1/10W		
R328~335			RK73FB2A104J	CHIP R	100K	J	1/10W		
R336			RK73FB2A272J	CHIP R	2.7K	J	1/10W		
R337			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R338~341			RK73FB2A104J	CHIP R	100K	J	1/10W		
R342			RK73FB2A182J	CHIP R	1.8K	J	1/10W		
R343			RK73FB2A104J	CHIP R	100K	J	1/10W		
R344			RK73FB2A102J	CHIP R	1.0K	J	1/10W		
R345~348			RK73FB2A104J	CHIP R	100K	J	1/10W		
R349~351			RK73FB2A103J	CHIP R	10K	J	1/10W		
R353			RK73FB2A103J	CHIP R	10K	J	1/10W		
R354			RK73FB2A104J	CHIP R	100K	J	1/10W		

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Ref. No	Address	New Parts	Parts No.	Description	Destination	Remarks
R355, 356			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R357, 358			RK73FB2A104J	CHIP R 100K J 1/10W		
R359			RK73FB2A331J	CHIP R 330 J 1/10W		
R360~366			RK73FB2A104J	CHIP R 100K J 1/10W		
R368, 369			RK73FB2A104J	CHIP R 100K J 1/10W		
R370			RK73FB2A473J	CHIP R 47K J 1/10W		
R371			RK73FB2A114J	CHIP R 110K J 1/10W		
R372			RK73FB2A104J	CHIP R 100K J 1/10W		
R375~378			RK73FB2A104J	CHIP R 100K J 1/10W		
R379~385			RK73FB2A101J	CHIP R 100 J 1/10W		
R386~389			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R390			RK73FB2A331J	CHIP R 330 J 1/10W		
R391			RK73FB2A104J	CHIP R 100K J 1/10W		
R393			RK73FB2A104J	CHIP R 100K J 1/10W		
R394			RK73FB2A101J	CHIP R 100 J 1/10W		
R401			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R402			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R403			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R404			RK73FB2A471J	CHIP R 470 J 1/10W		
R405			RK73FB2A221J	CHIP R 220 J 1/10W		
R407			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R408			RK73FB2A221J	CHIP R 220 J 1/10W		
R409			RK73FB2A331J	CHIP R 330 J 1/10W		
R411			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R412			RK73FB2A1R0J	CHIP R 1 J 1/10W		
R413			RK73FB2A221J	CHIP R 220 J 1/10W		
R414, 415			RK73FB2A100J	CHIP R 10 J 1/10W		
R416			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R451, 452			RK73FB2A221J	CHIP R 220 J 1/10W		
R454			RK73FB2A473J	CHIP R 47K J 1/10W		
R455, 456			RK73FB2A101J	CHIP R 100 J 1/10W		
R457			RK73FB2A473J	CHIP R 47K J 1/10W		
⚠ D1			D3SBA20F03	DIODE		
D2			DA204U	DIODE		
D3			U1BC44	DIODE		
D6			UDZ8.2B	ZENER DIODE		
D7			UDZ2.7B	ZENER DIODE		
D8			MA111	DIODE		
⚠ D9, 10			S5688B(TPB5)	DIODE		
⚠ D11			D3SBA20F03	DIODE		
D12			MA111	DIODE		
D13			UDZ5.6B	ZENER DIODE		
D14, 15			MA113	DIODE		
D16			UDZ6.2B	ZENER DIODE		
D17			MA111	DIODE		
D18			U1BC44	DIODE		
D19			UDZ18B	ZENER DIODE		
D20			UDZ15B	ZENER DIODE		
⚠ D21			S5688B(TPB5)	DIODE		
D22, 23			MA111	DIODE		
D26			DA204U	DIODE		
D29			MA111	DIODE		
⚠ D31, 32			MA111	DIODE		
D33			DA204U	DIODE		

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D36~38			DA204K	DIODE		
⚠ IC1, 2			ICP-N10	ANALOGUE IC		
IC4			PST993D-T	ANALOGUE IC		
IC5			LM431AIZ	ANALOGUE IC		
IC7			AD1855	MOS-IC		
IC8		✻	CS5360	MOS-IC		
IC10, 11			NJM4580ED	ANALOGUE IC		
IC13, 14			NJM4565MD	IC(OP AMP X2)		
IC15		✻	TC74AC86F	MOS-IC		
IC16		✻	TC74AC112F	MOS-IC		
IC17, 18			TC74HC164AF	IC(SHIFT REGISTER)		
IC21, 22			TC74HCU04AF	IC(HEX INVERTER SMD)		
IC23			LC8904Q	MOS-IC		
IC24			KAN06	MOS-IC		
IC25			SM5844AF	MOS-IC		
IC26			TC74HC157AF	MOS-IC		
IC27			LC89170M	MOS-IC		
IC28		✻	UPD784035GC836	MI-COM IC		
IC29			W24258S-70LE	MEMORY IC		
IC30			TC74HC373AF	IC(8 bit LATCH)		
IC31		✻	UPD784215GF533	MI-COM IC		
IC32			TC74HC4094AF	MOS-IC		
IC33			TC74HC373AF	IC(8 bit LATCH)		
IC34			W24258S-70LE	MEMORY IC		
IC35			TA8409S	MOS-IC		
IC36			TC74HCT7007AF	IC(HEX BUFFER)		
IC37			HD74HCT126FPEL	MOS-IC		
IC38			TC74HCT7007AF	IC(HEX BUFFER)		
IC39			TC74VHC244F	MOS-IC		
Q5			2SC4081(R,S)	TRANSISTOR		
Q6			DTC124EUA	DIGITAL TRANSISTOR		
Q6			UN5212	DIGITAL TRANSISTOR		
⚠ Q7			2SD2012	TRANSISTOR		
⚠ Q7			2SD2061(E,F)	TRANSISTOR		
⚠ Q8			2SA1576A(R,S)	TRANSISTOR		
Q9, 10			2SC4081(R,S)	TRANSISTOR		
⚠ Q11			2SB1370(E,F)	TRANSISTOR		
⚠ Q11			2SB1375	TRANSISTOR		
Q12			2SC4081(R,S)	TRANSISTOR		
⚠ Q13			2SA954(L,K)	TRANSISTOR		
Q16~19			2SD1450(S,T)	TRANSISTOR		
Q20			DTC124EUA	DIGITAL TRANSISTOR		
Q20			UN5212	DIGITAL TRANSISTOR		
Q23			2SC4081(R,S)	TRANSISTOR		
Q24			2SA1576A(R,S)	TRANSISTOR		
Q25			DTC124EUA	DIGITAL TRANSISTOR		
Q25			UN5212	DIGITAL TRANSISTOR		
Q27, 28			DTC124EUA	DIGITAL TRANSISTOR		
Q27, 28			UN5212	DIGITAL TRANSISTOR		
Q30			DTA124EUA	DIGITAL TRANSISTOR		
Q30			UN5112	DIGITAL TRANSISTOR		
Q31			DTC143TUA	DIGITAL TRANSISTOR		
Q31			UN5216	DIGITAL TRANSISTOR		
Q32			DTA124EUA	DIGITAL TRANSISTOR		
Q32			UN5112	DIGITAL TRANSISTOR		

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Ref. No	Address	New Parts	Parts No.	Description	Destination	Remarks
⚠ Q42			2SC2003(L,K)	TRANSISTOR		
⚠ Q44			2SA954(L,K)	TRANSISTOR		
Q45			2SC4081(R,S)	TRANSISTOR		
Q46			2SA1576A(R,S)	TRANSISTOR		
A1			W02-1181-05	OPTIC RECEIVING MODULE		
A2			W02-1114-05	OSCILLATING MODULE		
MD MECHANISM PCB (X29-2580-00)						
CN1			E40-3260-05	PIN ASSY		
CN2			E40-3261-05	PIN ASSY		
CN3			E40-8076-05	FLAT CABLE CONNECTOR		
S1			S68-0074-05	PUSH SWITCH		
S2			S64-0028-05	LEVER SWITCH		
PH1			T95-0140-05	PHOTO INTERRUPTER		
MD PCB (X33-1100-00)						
C21, 22			CC73FCH1H020C	CHIP C 2.0PF C		
C101			C92-0628-05	CHIP-TAN 10UF 10WV		
C102			CK73FB1E104K	CHIP C 0.10UF K		
C103, 104			C92-0628-05	CHIP-TAN 10UF 10WV		
C105			CK73FB1H103K	CHIP C 0.010UF K		
C106			CC73FCH1H102J	CHIP C 1000PF J		
C107, 108			CK73FF1E104Z	CHIP C 0.10UF Z		
C109			CK73FB1H223K	CHIP C 0.022UF K		
C110			CK73FB1E104K	CHIP C 0.10UF K		
C111			CK73FB1H683K	CHIP C 0.068UF K		
C112			CK73FB1H472K	CHIP C 4700PF K		
C113			CK73FF1C105Z	CHIP C 1.0UF Z		
C115			CK73FB1C224K	CHIP C 0.22UF K		
C116			CK73FB1H223K	CHIP C 0.022UF K		
C117, 118			CK73FB1E104K	CHIP C 0.10UF K		
C119			C92-0628-05	CHIP-TAN 10UF 10WV		
C121			C92-0048-05	ELECTRO 100UF 6.3WV		
C122			CK73FB1H103K	CHIP C 0.010UF K		
C123			CK73FF1E104Z	CHIP C 0.10UF Z		
C127			CK73FF1E104Z	CHIP C 0.10UF Z		
C128			CK73FB1H103K	CHIP C 0.010UF K		
C129			CK73FB1C474K	CHIP C 0.47UF K		
C130			CC73FSL1H101J	CHIP C 100PF J		
C131			CK73FB1H153K	CHIP C 0.015UF K		
C132			CK73FB1C474K	CHIP C 0.47UF K		
C133			CK73FB1H472K	CHIP C 4700PF K		
C134, 135			CK73FF1E104Z	CHIP C 0.10UF Z		
C136			C92-0048-05	ELECTRO 100UF 6.3WV		
C141			CK73FF1E104Z	CHIP C 0.10UF Z		
C142~144			CC73FSL1H101J	CHIP C 100PF J		
C146			CK73FF1E104Z	CHIP C 0.10UF Z		
C151			C92-0048-05	ELECTRO 100UF 6.3WV		
C152			CK73FF1E104Z	CHIP C 0.10UF Z		
C153			CK73FB1H103K	CHIP C 0.010UF K		
C156			CK73FF1E104Z	CHIP C 0.10UF Z		
C158			CK73FB1H682K	CHIP C 6800PF K		
C160, 161			C92-0167-05	CHIP-ELE 10UF 10WV		
C163, 164			CK73FB1H103K	CHIP C 0.010UF K		
C167, 168			CK73FF1E104Z	CHIP C 0.10UF Z		

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C169			C92-0628-05	CHIP-TAN 10UF 10WV		
C171			CK73FF1E104Z	CHIP C 0.10UF Z		
C181			C92-0048-05	ELECTRO 100UF 6.3WV		
C182, 183			CK73FF1E104Z	CHIP C 0.10UF Z		
C184			C92-0149-05	CHIP-ELE 22UF 8WV		
C185			C93-0031-05	CHIP-C 1000P 500V		
C187			C92-0048-05	ELECTRO 100UF 6.3WV		
C188			CK73FB1H103K	CHIP C 0.010UF K		
C189			CK73FB1H333K	CHIP C 0.033UF K		
C190			C92-0048-05	ELECTRO 100UF 6.3WV		
C191			CK73FF1E104Z	CHIP C 0.10UF Z		
C195			CK73FF1C105Z	CHIP C 1.0UF Z		
C196, 197			CK73FF1E104Z	CHIP C 0.10UF Z		
C200			C93-0032-05	CHIP C 10UF 10WV		
CN101			E40-8074-05	FLAT CABLE CONNECTOR (29P)		
CN102			E40-8075-05	FLAT CABLE CONNECTOR (19P)		
CN103			E40-8077-05	FLAT CABLE CONNECTOR (22P)		
CN104			E40-8078-05	PIN ASSY (2P)		
CN105			E40-8076-05	FLAT CABLE CONNECTOR (15P)		
L1, 2			L33-0545-05	CHOKE COIL (10UH)		
L3, 4			L33-0369-05	CHOKE COIL (100UH)		
L5~11			L79-1216-05	LINE FILTER		
R103			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R104			RK73FB2A103J	CHIP R 10K J 1/10W		
R105			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R106			RK73FB2A335J	CHIP R 3.3M J 1/10W		
R107			RK73FB2A474J	CHIP R 470K J 1/10W		
R108, 109			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R110			RK73FB2A103J	CHIP R 10K J 1/10W		
R112			RK73FB2A473J	CHIP R 47K J 1/10W		
R113			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R115			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R117			RK73FB2A474J	CHIP R 470K J 1/10W		
R120			RK73FB2A101J	CHIP R 100 J 1/10W		
R121			RK73FB2A104J	CHIP R 100K J 1/10W		
R123			RK73FB2A221J	CHIP R 220 J 1/10W		
R124, 125			RK73FB2A101J	CHIP R 100 J 1/10W		
R127			RK73FB2A101J	CHIP R 100 J 1/10W		
R131			RK73FB2A103J	CHIP R 10K J 1/10W		
R132			RK73FB2A104J	CHIP R 100K J 1/10W		
R133			RK73FB2A684J	CHIP R 680K J 1/10W		
R134			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R135			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R136			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R137			RK73FB2A101J	CHIP R 100 J 1/10W		
R140			RK73FB2A151J	CHIP R 150 J 1/10W		
R141			RK73FB2A561J	CHIP R 560 J 1/10W		
R142, 143			RK73FB2A103J	CHIP R 10K J 1/10W		
R144			RK73FB2A101J	CHIP R 100 J 1/10W		
R146~148			RK73FB2A101J	CHIP R 100 J 1/10W		
R150			RK73FB2A221J	CHIP R 220 J 1/10W		
R158, 159			RK73FB2A104J	CHIP R 100K J 1/10W		
R161~163			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R164			RK73FB2A681J	CHIP R 680 J 1/10W		

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R165			RK73FB2A104J	CHIP R 100K J 1/10W		
R166			R92-1854-05	RN 2.2 K 1/2W		
R167			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R169			R92-1853-05	CHIP-RN 1 1/4W		
R170, 171			RK73FB2A103J	CHIP R 10K J 1/10W		
R173			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R175			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R177			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R179			RK73FB2A473J	CHIP R 47K J 1/10W		
R180, 181			RK73FB2A103J	CHIP R 10K J 1/10W		
R182, 183			RK73FB2A473J	CHIP R 47K J 1/10W		
R184, 185			RK73FB2A103J	CHIP R 10K J 1/10W		
R188~190			RK73FB2A103J	CHIP R 10K J 1/10W		
W1~4			R92-0670-05	CHIP R 0 OHM		
W101			R92-0670-05	CHIP R 0 OHM		
W108			R92-0679-05	CHIP R 0 OHM		
W109			R92-0670-05	CHIP R 0 OHM		
W111			R92-0670-05	CHIP R 0 OHM		
W114			R92-0670-05	CHIP R 0 OHM		
W116			R92-0670-05	CHIP R 0 OHM		
W178			R92-0670-05	CHIP R 0 OHM		
W186, 187			R92-0679-05	CHIP R 0 OHM		
W195, 196			R92-0670-05	CHIP R 0 OHM		
W198~201			R92-0670-05	CHIP R 0 OHM		
D1, 2			F1J6TP	DIODE		
D101			MA111	DIODE		
IC1			CXA2523AR	ANALOGUE IC		
IC2			CXD2652AR	MOS-IC		
IC3			TC7S08FU	MOS-IC		
IC4			TC7WU04FU	MOS-IC		
IC5			TC74ACT540FS	MOS-IC		
IC6			X24C01AS-2.7	MEMORY IC		
IC7			HM51W4400BTT-7	MEMORY IC		
IC8			BH6511FS	ANALOGUE IC		
IC10			L88MS33T	ANALOGUE IC		
Q1			FMW1	TRANSISTOR		
Q2, 3			DTA144EUA	DIGITAL TRANSISTOR		
Q4, 5			DTC114YUA	DIGITAL TRANSISTOR		
Q6			2SA1576A(R,S)	TRANSISTOR		
Q7			2SB798-DL	TRANSISTOR		
Q8			2SJ278	FET		
Q9			2SK1764	FET		
Q10			DTC114EUA	DIGITAL TRANSISTOR		
MD MECHANISM (D40-1533-05) : MDM-04						
1	2B		A10-3329-08	CHASSIS ASSY		
2	1B		D10-3690-08	LEVER ASSY		
3	1A		D10-3698-08	ARM ASSY		
4	2A		D10-3759-08	SLIDER ASSY (HD)		
5	2B		D13-1784-08	GEAR ASSY (T)		
6	1A		J11-0824-08	CLAMPER ASSY		
7	1B		J19-5766-08	HOLDER ASSY		
8	3A		A11-1113-08	SUB SHASSIS (FRAME)		
9	1B		A11-1116-08	SUB SHASSIS (TOP)		
10	2A		D10-3742-08	LEVER (DOOR)		

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11	3A		D13-1792-08	RACK (GEAR)		
12	2B		G02-1616-08	FLAT SPRING (THRUST)		
13	3A		G02-1618-08	FLAT SPRING (SUB)		
15	2A		D10-3685-08	SHAFT (SUB)		
16	2A		D10-3694-08	SHAFT (MAIN)		
17	1A		D21-1859-08	SHAFT (JOINT)		
18	2B		D10-3686-08	SLIDER (MAIN)		
19	1A		D10-3687-08	SLIDER (LD)		
20	1A		D10-3689-08	ARM (CLAMP)		
21	2A		D10-3692-08	ARM (CHANGE)		
22	2B		D13-1786-08	GEAR (WORM)		
23	2A		D13-1787-08	GEAR (MOTOR-T)		
24	2A		D13-1788-08	GEAR (MOTOR-L)		
25	1A		D13-1789-08	GEAR (INTERMEDIATE LA)		
26	2A		D13-1790-08	GEAR (INTERMEDIATE LB)		
27	2A		D13-1791-08	GEAR (MAIN)		
28	1A		G13-0560-08	CUSHION		
29	3A, 3B		J02-1178-08	INSULATOR		
30	1A		G01-3964-08	EXTENSION SP		
31	1A		G01-3965-08	TORSION SP		
32	2B		G01-3966-08	EXTENSION SP		
33	1A		G01-3967-08	EXTENSION SP (S/HD)		
34	2A		G01-4014-08	EXTENSION SP (DOOR)		
35	3B		G10-0146-04	NON-WOVEN-FABRIC		
36	2B		N19-1101-04	POLY WS 1.2✻3.0✻0.5CUT		
37	1B		N19-1105-04	POLY WS 1.6✻3.5✻0.5CUT		
38	1A		N19-0366-04	POLY WS 2.1✻4.0✻0.5CUT		
39	1A		G16-0877-04	SHEET (TRAY)		
40	2B		E35-1715-08	WIRING HARNESS		
41	3A		E35-1780-08	FLAT CABLE		
42	3B		J80-0012-08	FPC		
47	2B		S33-1022-05	PUSH SWITCH SPPB12		
48	2A, 3A		J26-0052-08	PCB ASSY (X29-2580-00)		
DM	3A		T42-0871-08	MOTOR ASSY		
FM	3A		T42-0880-05	DC MOTOR		
LM	3A		T42-0881-05	DC MOTOR		
⚠ PU	3A		T25-0060-05	OPTICAL PICKUP HEAD		
RH	3A		T30-0013-05	RECORD HEAD		

L : Scandinavia **K :** USA **P :** Canada **R :** Mexico **C :** China **I :** Malaysia
Y : PX(Far East, Hawaii) **T :** Europe **E :** Europe **G :** Germany **V :** China(Shanghai)
Y : AAFES(Europe) **X :** Australia **Q :** Russia **H :** Korea **M :** Other Areas ⚠ indicates safety critical components.

HOW TO READ THE PARTS LIST

ABBREVIATION OF MODEL AND MASS PRODUCTION'S DESTINATIONS

MODEL	*ABB.*	*Australia*	*Canada*	*China*	*England*	*Europe*	*Germany*	*Korea*	*Malaysia*
DMF-9020		–	–	–	T1	E1	–	–	–
DMF-9020(S)		–	–	–	T2	E2	–	–	–
MD-2070		–	P1	–	–	–	–	–	–
MODEL	*ABB.*	*Mexico*	*PX/AAFES*	*Russia*	*Scandinavia*	*Shanghai*	*USA*	*Other area*	–
DMF-9020		–	–	–	–	–	–	–	–
DMF-9020(S)		–	–	–	–	–	–	–	–
MD-2070		–	–	–	–	–	K1	–	–

DMF-9020/9020(S)/MD-2070

SPECIFICATIONS

[Format]

System ..... **Minidisc digital audio system**
Laser ..... **Semiconductor laser**
Recording method ..... **Field modulation overwrite method**
Audio compression ..... **ATRAC (Adaptive TRansform Acoustic Coding)**
Playing rotation ..... **Approx. 400 rpm ~ 900 rpm (CLV)**

[D/A conversion]

D/A conversion ..... **1 Bit (24 bit type)**
Oversampling ..... **8 fs (352.8 kHz)**

[A/D converter]

A/D converter ..... **4 th order sigma-delta conversion+ D.R.I.V.E. conversion**
Sampling frequency ..... **44.1 kHz**

[Digital audio performance]

Frequency responce (playback mode) ..... **8 Hz ~ 20 kHz (± 1 dB)**
Signal to noise ratio (playback mode) ..... **More than 112 dB**
Dynamic range (playback mode) ..... **More than 96 dB**
Total harmonic distortion (1 kHz, playback mode) ..... **Less than 0.004 %**
Wow & flutter ..... **Less than unmeasurable limit**
Analog input sensitivity / input impedance ..... **500 mV / 22 kΩ**
Analog output level / output impedance ..... **2.0 V / Less than 300 Ω**
Headphone output ..... **50 mW/32 Ω load (Phones level MAX)**
Digital input
Coaxial ..... **0.5 Vp-p / 75 Ω**
Optical(Wave length 660 nm) ..... **- 15 dBm ~ - 21 dBm**
Digital output
Coaxial ..... **0.5 Vp-p / 75 Ω**
Optical(Wave length 660 nm) ..... **- 15 dBm ~ - 21 dBm**

[General]

Power consumption ..... **20 W**
Dimensions ..... **W : 440 mm (17 - 5 / 16″)**
H : 125 mm (4 - 15 / 16″)
D : 373 mm (14 - 11 / 16″)
Weight (Net) ..... **5.4 kg (11.9 lb)**

Notes
1. KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.
2. The full performance may not be exhibited in an extremely cold location (under a water-freezing temperature).

Note:
Component and circuit are subject to modification to insure best operation under differing local conditions. This manual is based on Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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